

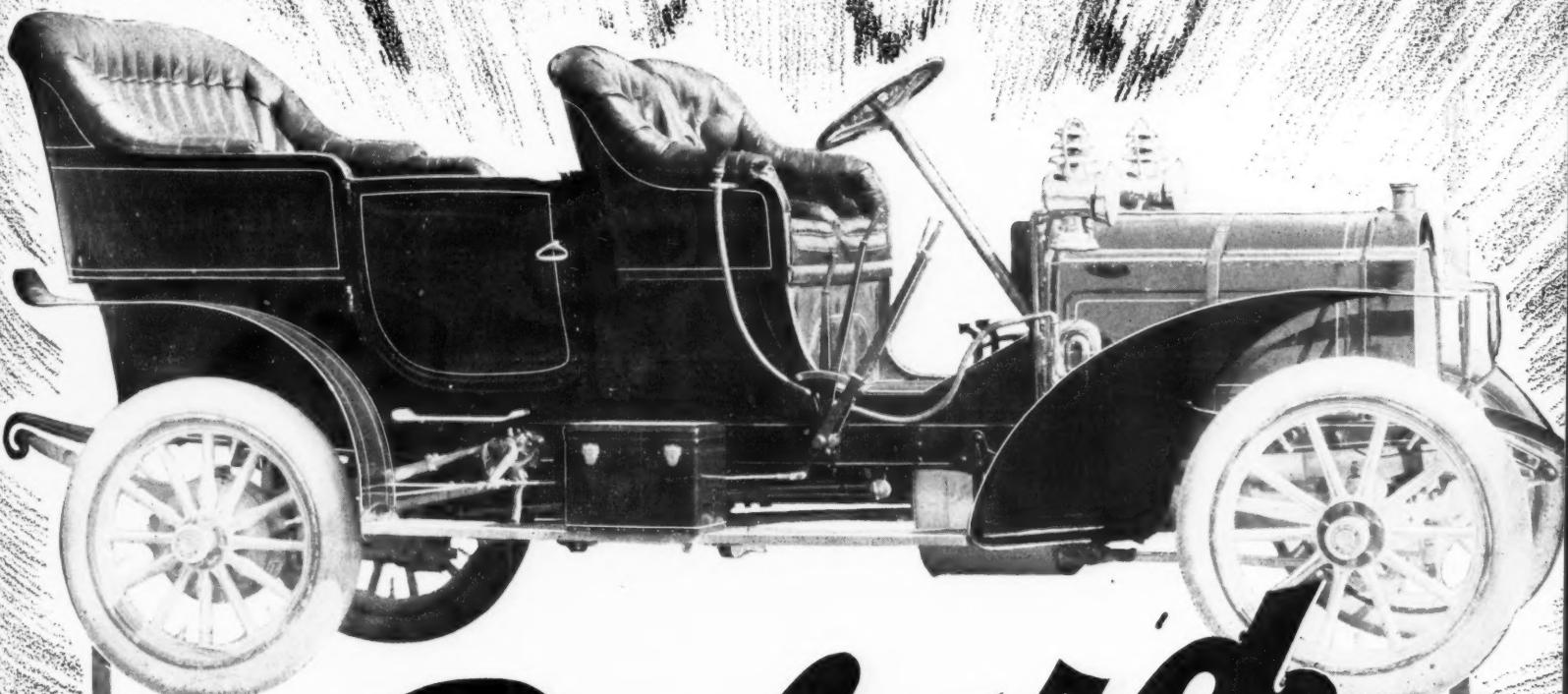
THE MOTOR AGE  
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# MOTOR AGE

Vol. VIII No. 21

CHICAGO, NOVEMBER 23, 1905

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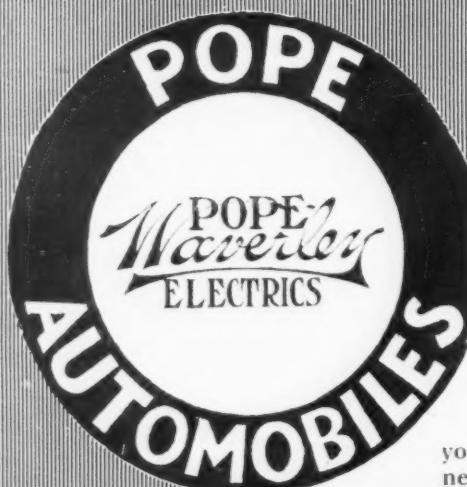
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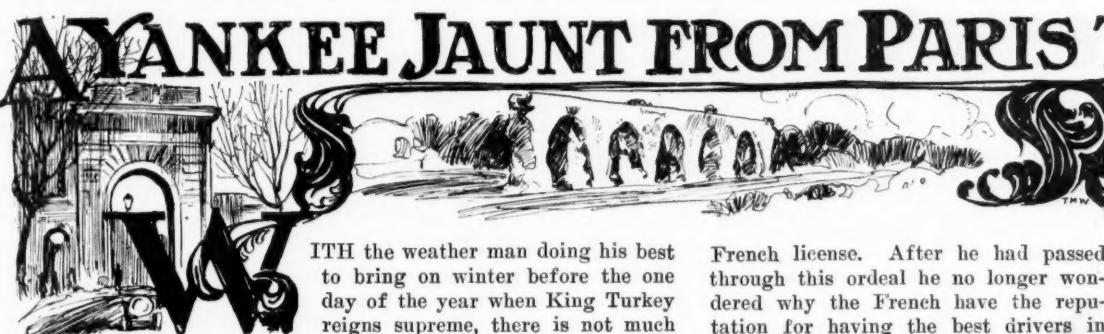
# MOTORAGE

VOL. VIII NO. 21

CHICAGO, NOVEMBER 23, 1905

\$2.00 Per Year

## YANKEE JAUNT FROM PARIS TO NICE



WITH the weather man doing his best to bring on winter before the one day of the year when King Turkey reigns supreme, there is not much left for the motorist with touring

tendencies well-developed who is forced to stay in northern climes but to sink into the luxurious depths of the big leather chair in the smoking room of the club and with others of his kind dig up reminiscences of the past summer and anticipate the joys that await him 6 months from now. If the motorist is of the other sex there is left to her the diary to which she can turn and read extracts to her less favored sisters in the sewing circle or at the mother's meetings. Probably no one will get more enjoyment out of such fanning bees as Mr. and Mrs. Walden W. Shaw of Chicago, who spent the first half of the year of 1905 in Europe, driving where fancy willed and drinking in the beauties of France, Italy, Spain and England from the soft seats of a big 24-35-horsepower Panhard, at the wheel of which sat Mr. Shaw, who works on the theory that if there is going to be any road mishaps he prefers to have the control of the car himself. However, a chauffeur—an American—accompanied the party, and very useful he proved to be, looking after the car and keeping it in the pink of condition, which is one of the essentials of perfect touring, according to experts.

To the stay-at-homes who are forced to do their sightseeing through the eyes of others, this jaunt seems almost ideal. The Shaws made Paris their rendezvous and after completing all preparations for their trip in the gay French metropolis, boarded the big car and hied to the south of France to Nice, which they made their headquarters and from which point they made their excursions into Italy and Spain. Little Miss Shaw and her nurse were left in the villa in Nice while the grown-ups went on their sight-seeing trips through the historic countries surrounding them. In this way it was almost like being at home with Europe at one's own door.

A member of the Automobile Club of Nice, Mr. Shaw took the precaution before leaving Paris to fortify himself with a

French license. After he had passed through this ordeal he no longer wondered why the French have the reputation for having the best drivers in the world and why such high speed is permitted in that country. The reason was apparent—no one received the O. K. on his motoring passport until he had thoroughly convinced the authorities that he knew his car and was fully competent to be trusted on the magnificent highways of Europe. The first step necessary in this ordeal was to apply for a license to the minister of mines, stating the power of the car, when built, the speed it was capable of developing, the number of teeth on the sprocket and many more questions of similar character, so that the authorities had all the data at their command. In due course of time Mr. Shaw was visited by an expert sent by the minister of mines, who took the American out on the road in order that he might demonstrate his ability. For 15 miles Mr. Shaw was on the rack. Up hill and down dale the big car went, quick stops being made occasionally, while he was also asked to demonstrate the command he had over his car on the hills. After this came a wait of a week and then the license, which was the open sesame to the joys of motoring outside Paris. On the card was pasted a photograph of Mr. Shaw and armed with this documentary evidence of his ability to handle an automobile, he had not the slightest difficulty with the authorities in other cities. The one license was enough for all Europe, although nearly every country has a law similar to France's.

As might be expected by the severe examination, every driver Mr. Shaw met on the road knew his business. It was a safe bet that the man you were approaching was going to stay on his side of the road and the strain one runs across in this country, where it is necessary to do a certain amount of mind reading and guess what the other fellow is going to do, was done away with—all that the tourist had to do was to pay attention to his own steering.

Fully equipped in the way of license and supplies and with the



COMING OUT OF THE SHORT TUNNEL NEAR AUXERRE, FRANCE

Panhard in trim for the trip, the Shaws left Paris January 18 for a run down to Nice. It was a cold day, but the sun was out and the sky of cerulean hue. Paris was left by way of the port de Choisy and outside the gates a stop was made to lay in the stock of gasoline, which is much cheaper outside the walls of the big city than inside. Choisy le Roi was the first town reached, then came Villeneuve, where the Seine was crossed. Outside Villeneuve the Americans got their first experience with pave—pronounced pauvay—a road made of square blocks of stone, each about a foot square, that have been there for hundreds of years. The pave looked a good deal worse than it is in reality, and it was not long before they were rewarded by reaching the magnificent macadam roads they had heard so much about. They found them fully up to expectations—just like glass, well graded and drained by ditches, while on each side of the highway were double rows of tall, beautiful trees, which in places met above their heads, forming arches of verdure for many miles.

From Villeneuve to Melun, a distance of about 15 miles, they found the road perfectly straight, without a suspicion of a turn. At Melun the Alonet river, which empties into the Seine, was crossed, the road passing through Sivry, La Chatelet and Valence en Brie, finally reaching Montereau, where the Seine and Yonne rivers were crossed and the southern bank of the Yonne followed to Port sur Yonne, where the river was again crossed and the northern bank taken to Seus. Here the road was perfection, outside of the fact that there were some sharp curves. Following the twistings and turns, the tourists had spread out before their American eyes a grand panorama of country, the hills and valleys checkerboarded off in little patches representing the different crops, each laid out with a park-like regularity that added to the enjoyment of the scene. Another river was crossed at Seus—the Vanne, which empties into the Yonne. Then the road passed through Villeneuve sur Yonne to Joigny, where the tourists decided to take the lower course through Auxerre and Avallon to Dijon instead of going north through Tonnerre. They found the southern route more hilly, but were rewarded by grand scenery. The road from Joigny to Auxerre made one turn which ran a distance of some 15 miles, and Auxerre reached at 5 o'clock. As it was almost dark then, it was decided to make the stop for the night at this point. The party put up at the Grand Hotel de la Fontaine, where, they were told, Napoleon once slept. The distance covered during the day was 105 miles.

The second day's trip was from Auxerre to Beanne, a distance of a trifle over 106 miles. The Americans were away to an early start, 7:15 o'clock finding them on the road, which almost immediately took them

into the mountains, their first experience being a passage through a tunnel. At Avallon they asked a woman in a donkey cart the way and were misdirected, making the complete circuit of a mountain and again bringing up at Avallon before discovering their mistake. This made a difference of 25 miles, but finally the national highway was picked up again and followed to Prey. On the way they ran into a severe snow storm in the mountains, so that the shelter of a snug brasserie or cafe—where the food was nothing to brag about, the tourists finally taking the remains of the meal and feeding it to the dogs—was enjoyed. Then the trip was resumed, Dijon being reached about 4 o'clock in the afternoon. Not sat-

slush, then frozen, so that it was difficult work to keep the Panhard in the path. Passing through Chagny, Chalons was reached and here a stop was made to lay in more gasoline and oil. From here the banks of the Soane were followed over a rolling road until Tourim was reached. Here they passed a Fiat carrying two men, with the results that there were several lively bushes along the broad highway. Through Villefranche and Limonest they went, the Panhard some ways ahead, until finally when the Shaws stopped to take a picture of a perfect road, shaded on either side by magnificent trees, the Fiat passed and was seen no more, Lyons being its destination.

It was a beautiful bit of scenery along here, the mountains on both sides being covered with snow. If it had not been for the melting of the snow in the low country and on the road, it would have been impossible to have made the time the Americans did. About here they started a steady climb over the mountains for Lyons, a distance of about 6 miles, the road winding around the cliffs, with an abrupt descent into Lyons, which was made with the engine disconnected and the big car coasting along as easily as a boy sliding down hill on a bob sled, and with not much more noise.

After an hour's stop in Lyons, the journey was resumed, the Marseilles road being followed. This took them up the mountains again in order to reach the Rhone valley.

All the way to Vienne it was hilly, with deep snow on the hills and with the valleys green with verdure.

Ideal touring conditions were discovered from Vienne to Valence, the roads being about 50 feet wide and paved with macadam. Here was found the carniveau, which is a ditch about 18 inches deep and about 6 feet wide, with sloping sides, paved with stone, a relic of the middle ages, and intended to keep the spring torrents from the mountains on the side of the road from washing out the highway. There is no danger if one takes them slowly. About 200 yards on each side of the road is a T. C. F. danger sign,

OLD ROMAN AQUEDUCT AT FREJUS  
HISTORIC RUINS ALONG FRENCH HIGHWAY

isfied here, the Shaws determined to push on to Beanne. They found it like a Peary excursion to the north pole, the roads being covered with 3 inches of snow. But a passage through the beautiful land had been ploughed, so the going was not bad. The last 10 miles or so before reaching their destination were made in darkness, so that the big acetylene lamps were brought into use, throwing beams of light 200 yards ahead, making travel comparatively easy. The hotel at Beanne was small but comfortable and here the tourists had their first experience with candles, gas not being available. The distance for the day was 131 miles, which put them 211 miles from Paris.

Leaving Beanne early the next morning the tourists found that the snow of the night before had been first converted into

put up as a warning for these ditches. Racing with trains and following the Rhone, the Shaws still found time to admire the ruins of old castles on the hill tops. Darkness overtook them at Tain and the lights were called into play, with the result that Valence was reached at 5:45 p.m., where the tourists put up at Hotel de la Croix d'or for the night. They had traveled 180 miles that day and were 391 miles from Paris, with two more days' journey ahead of them before reaching Nice.

The next stage of the journey was far from being as pleasant as the preceding ones. It was cold, the wind was sharp and penetrating and there was a white frost over everything. But the Chicagoans were game and pushed on, reaching Montelimar and then following the valley of the Rhone.



At Orange they ran across a historic old Roman arch which was promptly cameraed, then the Chicagoans drove to Avignon, where is located the palace of the pope. They went through the palace, cathedral and the beautiful gardens on the high hill. The next town on the route was Aix en Provence, which was reached about 3:30 p. m. through the valley of the Durance. At this point they took to the mountains again, Brignoles being their stop for the night. One hundred and forty-nine miles were covered that day, leaving the party 540 miles from Paris and 80 miles from Nice.

Not much of a trip was left for the last day. At Frejus a stop was made to secure photographs of the aqueducts and the old Roman arena. Here the tourists crossed the Estrelle pass between Frejus and Cannes, then hurried along through Cannes, Antibes and finally Nice was reached at 11:30. On the promenade des Anglais was a sight that gladdened the mother's heart and in a jiffy little Miss Shaw, cart and nurse were picked up and bundled into the car, which whirled the re-united family to its villa on the Place Anglicane, which was made their headquarters while they were in this part of the country and from which started those jolly little excursions into Italy and Spain.

"Our plan of making Nice our headquarters and from that point taking little jaunts into Spain and

Italy was as near perfection as a touring automobileist could well desire," said Mr. Shaw. "In that way we always had a comfortable home to return to and the trips did not tire us the way they would if we had simply wandered around. We had some trouble locating in Nice, though, for it was hard to find a villa that had modern conveniences. Finally we hit on a snug little villa on the Place Anglicane, built by an Englishman, and boasting one of the very few bath rooms in the city. We arrived in Nice in time to take in the carnival, and a grand sight it was, I assure you.

"On some of our little rambles we saw some of the finest bits of old architecture in Europe. For instance, at Nimes we ran across the Maison Carré, which was built by the Romans before Christ. It has never been renovated and is undoubtedly the finest bit of Roman workmanship remaining. Then there are the old Roman baths with the bottomless springs. Just outside of Nimes is one of the real curiosities of the trip—Aignes Mortes, a walled town which, in the old days, must have been a regular Gibraltar. Surrounding the town is one huge swamp, which would effectually shut off the enemy. Of course, there has to be some way to get into the place, and that is provided for by a beautiful road, which runs through the swamp in a straight line. But the builders of the fortress were wise enough to make the place

safe and some distance before you get to Aignes Mortes you find a huge tower dumped down across the road, effectually barring off approach if the defenders of the town so willed it, for the swamp acts as a barriade in any other direction.

"One of our favorite runs was from Nice to Monte Carlo. It is an easy little trip, taking just about as long to make as it does to run out home from down town. We'd do it in about 25 minutes and along the road to the resort you experience the true joys of fast driving on magnificent highways. Every man you met knew his business, leaving you free to look out for your own car. You can readily appreciate how much this lifts off your mind. The

stone to London I kept saying 'left' to myself so I would not forget the change of style of driving.

"The roads twist and turn along this route and are very narrow, but I had been progressing fine. Then we struck one long, sweeping curve, one so big you couldn't see the people coming from the other way. I was bowling along some at that, and just as I struck the crest of the curve I saw another car coming about as fast as I was, and I became a bit mixed right here and just missed hitting it by not more than a foot. That certainly did impress the left idea on my mind and I guess I will never forget it as long as I motor.

"Driving through Italy in the southern part of the country we struck roads far different from those up near France. The highways there are repaired by simply dumping loose rocks into the ruts and letting the traffic wear them down. You can imagine how this works. There's always two deep ruts far worse than any of our street car lines in this country and once you got into them it was hard swinging out again to pass anyone. This often led to vexing experiences with the country people who take things so easy. We'd come across a vehicle traveling to town with the carter fast asleep, so that often we had to cut

down the speed to a snail's pace and follow until the driver happened to awake. He knows how to take it easy, too, for his cart is equipped with a swinging bed, much on the same style as these swings on porches of country homes here—four chains running down, one from each corner of the wagon and holding a platform upon which the driver stretches himself for a snooze. The horse knows the way and even if he doesn't the deep ruts hold him to his course, so all his owner has to do is to start the animal and then go to sleep.

"In Italy we did not follow the routine by keeping to the coast line, as many of the other tourists do, but cut up into the country into the lake districts, thus enjoying trips that are denied to most motorists who travel through Italy. The roads there were, most of them, built by Caesar and he built them for keeps. As a rule they run as straight as an arrow and such a thing as a mountain does not cause any deviation in the route—the road either runs through the mountain or else goes around it.

"In Italy they sell gasoline by the pound and one place it cost me \$18 for about 25 gallons. It is not hard to get, though, for motoring is so universal that nearly every hotel and shop has a supply on hand.

"That long trip made America look pretty good to us when we struck New York and at the present time I am well satisfied to stay at home, although I have been thinking strongly of joining a party of friends for a winter in Jamaica."



CATHEDRAL LOCATED AT SEUS, FRANCE  
ONE OF THE ROADS RUNNING OUT OF NICE

road is smooth and the curves can be taken at top speed without danger.

"All through our tours of Europe we had few mishaps. Only once can I remember that we even got a scare. That was in England and was occasioned by the rules of the road there, which require the driver to keep to the left. This law may sound queer in this country, where we are all used to staying on the right side, but I daresay our way looks just as funny to John Bull. This left-hand style has been handed down for centuries. It seems that it originated with the rule requiring the owner to have his name painted on the right side of his rig, so that in case of accident his identity could be readily learned by the people on the sidewalks. So, all the time I was running from Folke-

# BIG ENGLISH SHOWS IN FULL BLAST



Olympia and Stanley Exhibitions Opened—French Makers Much in Evidence—Some of the New Things in Construction On the Other Side of Atlantic



London, Nov. 17—Special cablegram—According to schedule England's two shows opened today—the big affair promoted by the Society of Motor Manufacturers and Traders in Olympia hall, and the other exhibition in Agriculture hall. Of course more interest centered in the former, for the Stanley show does not pretend to enter into competition with Olympia, its exhibits being confined mostly to motor bicycles and tri-cars, which are barred at Olympia. The Stanley also has a fair number of car exhibits, but these are restricted, as in former years. Sir Albert K. Rollit, M. P., officiated at the Stanley opening.

The fourth annual show of the Society of Motor Manufacturers and Traders opened this morning in Olympia hall under the patronage of King Edward and the prince of Wales, thus in a way stealing a march on the Paris salon and showing the French that there are others, to use an Americanism. The show closes November 25. It was a brilliant opening, the huge buildings being magnificently decorated and every inch of space filled by the very latest things in motor construction. There were 300 exhibitors ready for the crowd when the doors swung open, of which fifty-one represent foreign makers. One hundred firms are showing cars, thirty-five have commercial vehicles, twenty-six have motor boats, while the rest is made up of people who make bodies, tires, accessories and machinery. It was a most representative show and had fifty-two more exhibitors than last year's affair. The annex is a small show in itself, 10,000 feet of additional space being secured by removing a number of pillars and building a new roof on the building.

For the first time an English show has the cream of the French makers exhibiting their new cars a full month ahead of the Paris salon. While it is clearly apparent that the people from across the channel are not showing every new thing they have up their sleeves, still the strong support they are giving Olympia is a victory for John Bull and will no doubt be a strong argument for the English show opening this early from now on.

Even at this hour the show is most complete, despite the handicap English manufacturers have been placed under by the short time in which they had to get up their 1906 models. There was an extremely short space, from the manufacturers' viewpoint, between this show and the last one and few expected to see so many completed new models as there were on the stands when the building was thrown open this morning. Of course, there are quite a number of incomplete exhibits, but that was to be expected, but on the whole the show is a credit to the promoters as well as to the exhibitors who have as yet hardly recovered from the retail selling season.

As one walks through the vast buildings the new wrinkles for 1906 are most noticeable. Probably what impresses the observer most is that the designers have gone in more for comfort than in previous years, that there has been a general increase in horsepower, that ball bearings have come into greater popularity, that there has been a radical departure in the abandonment of the engine under the hood on the part of some, that more firms are using shaft transmission and final gear drive and that there has been an increase in the size of the wheels.

London, Nov. 11—The British motor trade is too busy even to talk. The reason is that Olympia opens in 4 working days from now, and, as usual, everything has been driven so late that quite a number of exhibitors don't know what they will or will not have on view. The building has been in the hands of the Society of Motor Manufacturers and Traders since November 1, but the raised dais, upon which all exhibits are staged, had to be laid down, so that it was November 6 before the earliest exhibitors could obtain entrance, and even yet one can only see a chaos of properties and scenic effects half disclosed. But cars will begin to arrive on Monday and then, in the words of the poet, we shan't be long. Hitherto the society has simply thrown open its doors about midday and let the show open itself, but it is felt that the importance of the industry and its claims should have some more public recognition. Accordingly the promoters are endeavoring to obtain the presence of the prime minister at a formal function and if this is achieved the customary public ceremony will be enacted and the exhibition, which is under the patronage of the king and the prince of Wales, blessed and toasted and all that.

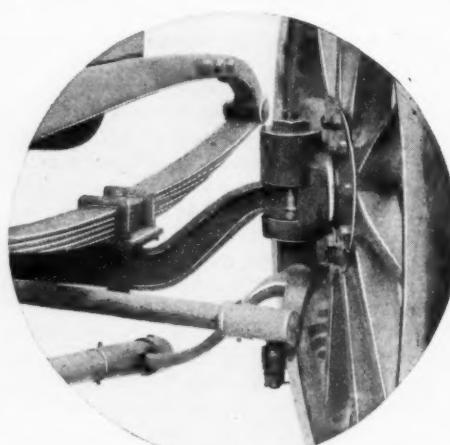
Body design has evidently been given much careful thought this year, for it is noticeable that the comfort of the

passengers has been looked after. In the line of covered carriages there is a double landauett, with inside capacity for four passengers. This type has been taken up by the British firm of Argyll and by the French firms of Mors. C springs, too, are played up prominently by S. F. Edge, representing the British industry, and by Charron, Girardot & Voight, from the other side. Considerable favorable comment is heard on all sides for the Napier springs, which are declared to be most luxurious. They combine the three-point suspension of the transverse spring with the S spring and leather braces of the old barouche.

Most striking is the abandonment of the bonnet in front and the placing of the engine under the driver's seat. This, however, is found only in covered carriages, particularly in the new Napier landauett and a town brougham brought out by the Mors company. Critics who have inspected this innovation are inclined to think that this movement will gradually extend itself to other types, although it is thought it will be a long time before the engine will be moved from in front of the high-powered touring cars.

None seems to be able to get away from the high power fever. Even the conservative ones who start out by declaring they intend catering only to the big demand for small, light cars inevitably drift into the manufacture of something big. Striking instances of this are found in the case of the Albion Motor Co., which is making a 24-horsepower car, while the American Oldsmobile is another example. The latter, hitherto prominent for its runabout, has for 1906 a four-cylinder 20-horsepower car and also a two-cylinder 12-horsepower rig. Legros & Knowles, who have heretofore confined themselves to the small car, are in line with 25-30-horsepower and 35-40-horsepower machines, and the Duryea has advanced from 12-15 to 15-18.

One of the points upon which a very large amount of alteration and innovation is observable is the clutch. The leather faced cone type is, generally speaking, relegated to the cheap car; the laminated, or disc, type is found in the largest and most costly cars in which professional pride has not operated to prevent progress. The laminated clutch, after a year's debate and test, has won all along the line. Its expensiveness is its only principal drawback. It adds considerably to the cost of a small car for it must be made really well or left alone. There are at the moment only two leading clutches of this kind in use—the Hele-Shaw and the Bradley. The Hele-Shaw is the older and more popular, but the Bradley is quite as good and has a more positive disengagement. This in the Hele-Shaw is secured by small flat springs arranged between the discs. In the Bradley it is secured by a series of stop pins



STEERING CONNECTIONS OF THE CROSSLEY

penetrating all but the particular disc each governs, three pins being provided for each plate. It is a difficult operation to describe clearly, but briefly the action of each set of three pins is to push its particular plate out of engagement when the clutch pedal is pushed down. The Argyll, Arrol-Johnston, Clement-Talbot, Dennis, Gladiator, Beloze, Albion, Armstrong-Whitworth and Bell Bros. use them.

On the de Dietrich and a few others of similar type it is apparent that a lesson has been learned from the horizontal engine, for here spectators will find both sets of valves on the same side of the engine, which works all the valves on a single camshaft. Ball bearings are more prominent than ever, principally in connection with the bearings of the gear shafts. The Dennis people fit balls also to the worm pinion, as well as to the axle and front hubs. The Royal Enfield has ball bearings fitted to a live axle in the new model of its touring car. The Argyll folk are fitting their gear bearings with rollers. While each faction is claiming superiority, it is evident that there is a tendency to substitute sliding for rolling friction.

Shaft final transmission and gear drive, too, are prominent on the new models, the most prominent convert being the C. G. V. There is also a tendency to use larger wheels as well as tires. In regard to the latter, it seems to be the general opinion that it has been clearly demonstrated that one of the chief causes of excessive tire wear has been the use of tires too small for the weight they are called on to carry. Therefore, the Albion with 5-inch tires on all its four wheels will be one of the sensations of the show. Thirty-four-inch wheels will be seen on all sides in marked contrast to the early style, when few cars had anything over 30 inches.

The introduction of the side entrance tonneau has been the means of permitting the placing of luggage racks in the rear, something that could not be put on with the rear entrance. This idea, however, is not new, although several cars now have the entrance from the side. It is also noticeable that long wheel bases are not generally admired, although a necessity when the side entrance is fitted. Narrow roads and sharp turns have taught their lesson and many find it impractical to use a car with a long wheel base, find-

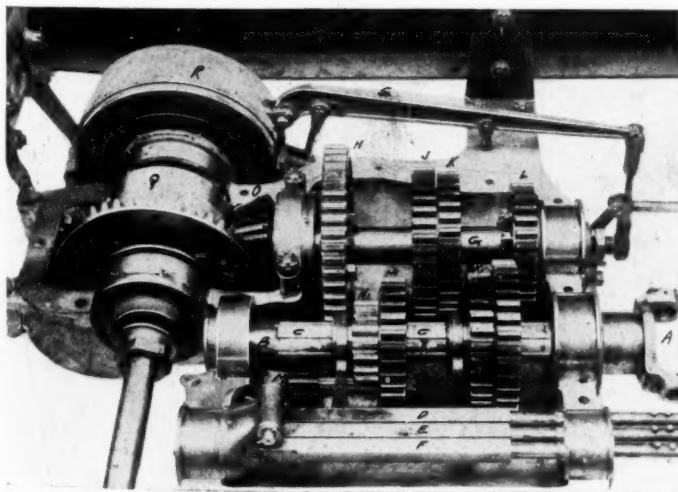


THE CROSSLEY BRAKE

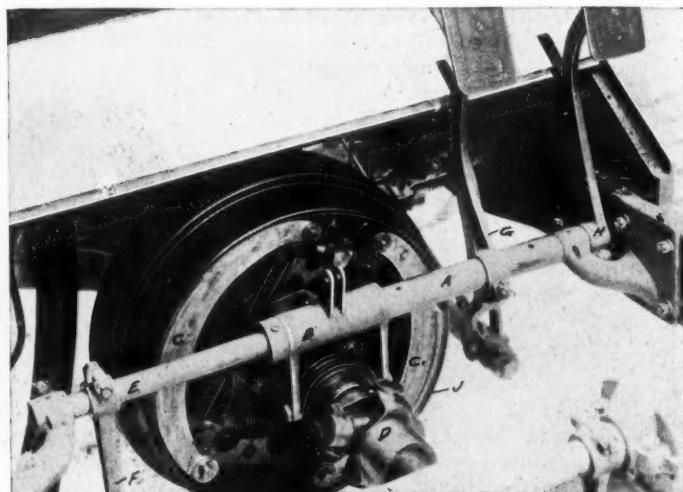
ing that a shorter one is much easier to handle on the average country road.

Few cars seem better constructed than the Crossley. The leading features of the Crossley are pressed steel frame cross-tied and reinforced at main angles, extra long hangers carrying extra long springs, thus giving a long body without unduly lengthening the wheel base. Mercedes practice is very pronounced in some features. The radiator and bonnet, the system of steering wheel control and the speed gears and change systems are all on Mercedes lines. But there are many purely Crossley features which are sure to be imitated for their excellence. The engine on both 22-28 and 40-horsepower models is four cylindered, with cylinders cast in pairs and valve pockets on opposite sides, both being mechanically operated. Low tension magneto is the system adopted, with vertical ignition rods made adjustable so that the ignition in each cylinder can be most accurately timed. Double springs are fitted to each ignition plate and bottom tappet lever arms are fitted with pillars to admit any fitting of springs. By adopting adjustable valve roller spindles the clearance between spindles and induction valve is reduced to a minimum, thus maintaining the valve open over the greatest period. In common with most other leading European designs ball bearings have been introduced into the gear box, steering gear, clutch and road wheels. The adoption of the Mercedes type of double gear-shafts has of course necessitated the

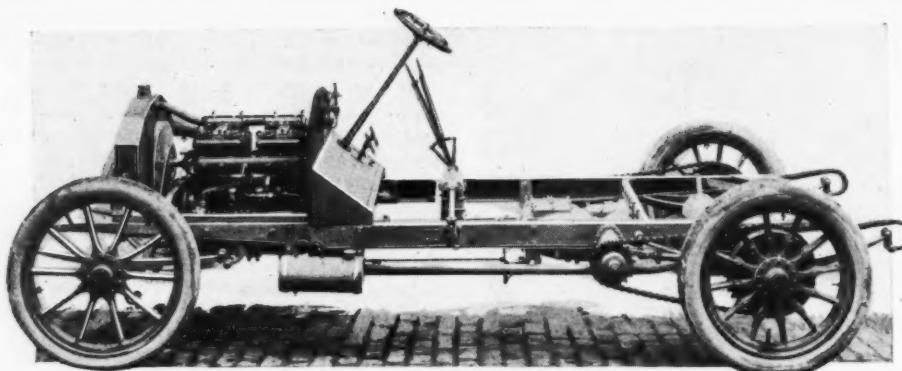
adoption of the gate style of change speed lever quadrant. Unlike the new Mercedes, however, there is no through drive. The type of flexible joint between gear box and clutch is worth inspecting, as also are the connections between the steering pillar and the steering wheels. The after end of the steering rod is a distinct improvement on the usual ball joint and the whole front carriage, with its block fan to eject from the bonnet the dust drawn through the radiator, and steering connections, ball bearing throughout even to the rod connecting the steering arms, is really well thought out. In the Crossley clutch the flywheel rim is made with a wide flange J forming a female clutch member, the male part consisting of a pair of expanding shoes C and C1 pivoted at their upper ends and with the lower ends attached to a perforated metal framework carried on the hub clutch. This framework carries a pair of levers, expanded by a cone on the clutch shaft. When the clutch is engaged the expansion of the shoes takes place at the lower part of their faces, metal plates being embedded in the shoe faces, providing a removable friction surface. A coil spring K removes the shoes from the female part in disengaging. The clutch pedal G is fastened to the sleeve A, on which are two depending arms for moving the cone on the shaft. Within the sleeve A is the brake racking shaft E, carrying at one end the pedal H and at the opposite one the arm F, connecting by cable with the brake band. The shaft D with universal joint connects with the gear box. Following 1906 tendencies this box is made with four forward speeds and has the differential gear housed in a separate chamber at the rear end. Gear changes are made on the Mercedes gate system, three shifting units being employed. Ball bearings have been fitted in all of the main and countershaft bearings, as well as on both sides of the differential and to absorb end thrust. The main shaft B connects with the clutch at its forward end A and has the two sliding units, K1-L1 and H1-J1, held by four large feathers, half of the shaft surface being feathered. For top speed, drive to the countershaft is through the gears L1 and L, for third speed through K1 and K, through J1 and J for second and H1 and H on the slow. The former two speeds are



CROSSLEY SPEED CHANGE GEAR AND DIFFERENTIAL



CLUTCH AND CONNECTIONS ON THE 1906 CROSSLEY



THE 18-22 HORSEPOWER CROSSLEY CHASSIS

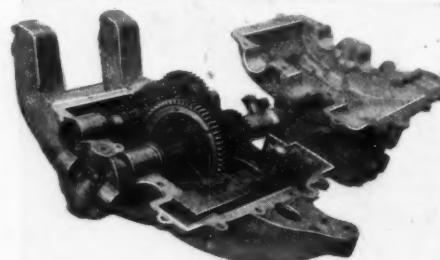
gained by the shifting rod F with arm connecting with the gears and the second and first speeds through the shifter E and a short arm which is shown. For reversing, the rod D with its arm coupling with the gear M is used in moving this gear into mesh between H1 and H, it having sufficiently wide face to mesh with both when they are in the positions shown. Both the pinion O on the end of the countershaft G and the bevel P on the differential are supplied with end thrust ball bearings, the differential Q uniting the two drive shafts forming the jackshaft. On this shaft at the left of the gear box is a contraction brake for regular use, the band R being operated through the lever C, which is connected with a good sized foot-board pedal.

The Arrol-Johnston 12-15-horsepower is the commercial outcome of the Tourist trophy race and some of its features are worth noting specially. The gear box has four speeds, operated on the Mercedes gate system. The ratios are 6, 14, 21 and 30 miles per hour, the last being a direct drive. The gear shafts run on roller bearings. The coupling between engine and gear box allows part of the weight of the flywheel and clutch to be borne by the gear box roller bearing. The gear box has three-point suspension, the upper half of the aluminum gear box being easily removable without disturbing the shaft bearings. The universal joint for propeller is interesting. It consists of two rings, bolted together at angles of 90 degrees; four axial holes are bored to accommodate bushings, which form the bearing surfaces of two projecting lugs on the jaws of the gear and cardan shafts, respectively. The form secures that all driving effort shall not act as nearly as possible in one plane, thus maintaining a constant driving velocity throughout each revolution of the cardan shaft. To the rear end of the cardan shaft is fitted a combined spring and universal-joint drive.

For their contribution to the 1906 market John I. Thornycroft & Co. offer a 14-horsepower and a 24-horsepower, the former being four-cylindered, with all valves in the cylinder heads and each operated by a separate rocker. The complete shaft can be withdrawn for inspection, the crank-shaft actuating the valve tappets being in a separate casing. The engine mechanism is lubricated by means of a gear-driven pump in the crank chamber, while the water-circulating pump and low-tension magneto are bevel-driven off a vertical spindle. Other features are a crankshaft

with five bearings, pistons with four rings, automatic carburetor, friction clutch, spur-wheel type differential, a pedal operating on the metal-to-metal brake and a side lever on two V-shaped brake drums on both driving wheels.

Noticeable on the Winton model K is a four-cylinder engine with 4½-inch bore and 5-inch stroke, with the cylinders cast in pairs, pistons with three rings, oil grooves in cylinders and pistons, while the crankshafts, pistons, etc., are removable without detaching cylinders. While the car



ARROL-JOHNSTON GEAR BOX

is fitted with high tension accumulator ignition there is provision made for a magneto. An eight-lead Hill Precision lubricator mechanically forcing the oil at a speed in proportion to that of the engine is fitted, instead of the roller oiler. In the gear box it is found that there are but two forward speeds. A reverse is provided, the gear wheels always being in mesh. Spur differential, driving wheels mounted on roller bearings and a live axle, complete the transmission system. It is also noticed that the patented Winton air governor for regulating the lift of the automatic inlet valves is again a special fea-

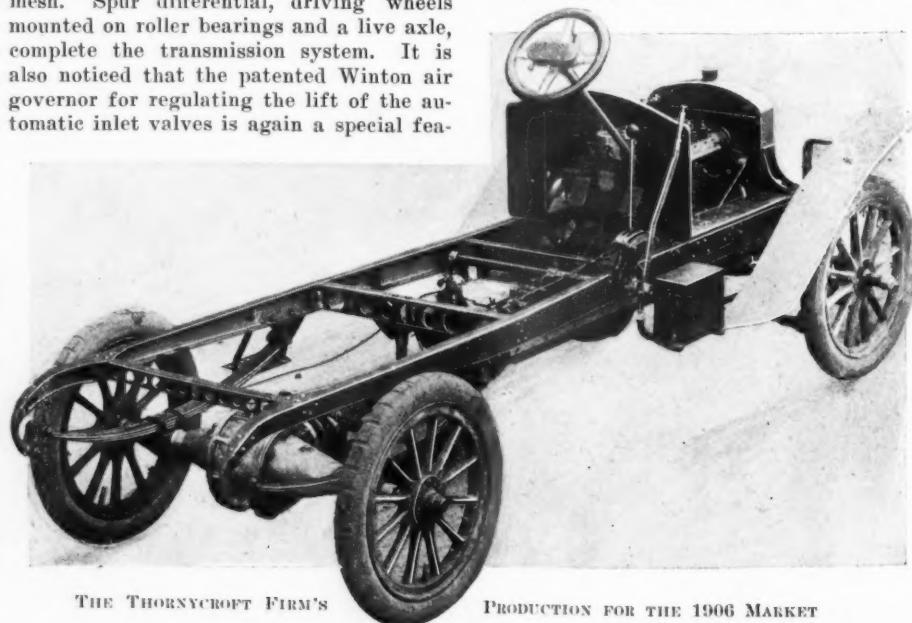
ture. Twin springs, laminated wood mud-guards, 17-gallon gasoline tank and a side entrance body complete the details.

Another American car is the Oldsmobile, with two models—a 20-horsepower four-cylinder touring car, a two-cylinder vertical-engined 12-horsepower car, and the 7-horsepower runabout. On the big car is a vertical engine, pressed steel frame and all the latest devices in the details. Among the improvements noted are a ratchet brake, instead of the old differential brake; new type of external hub brakes, with steel bands and lining of camel's-hair belting; new water-circulating pump of four times greater capacity than the 1905 model and chain-driven off the crank-shaft; steel tubular front axle, rearrangement of radius rods for driving chain to prevent the chain sagging on the differential casing, increasing flexibility of the long fore and aft springs, four rings to the piston, marine type of connecting rod in place of the old hinged pattern paraffin cup at cylinder head for easy starting, improved lubricating system, valve levers of forged steel, instead of malleable iron, and removable valve stem guides.

English buyers are taking a lively interest in the White steamer, of which there are the new side entrance 18-horsepower car and the double phaeton, with seating capacity for five people. There are also the car with the brougham or limousine body, and the landau.

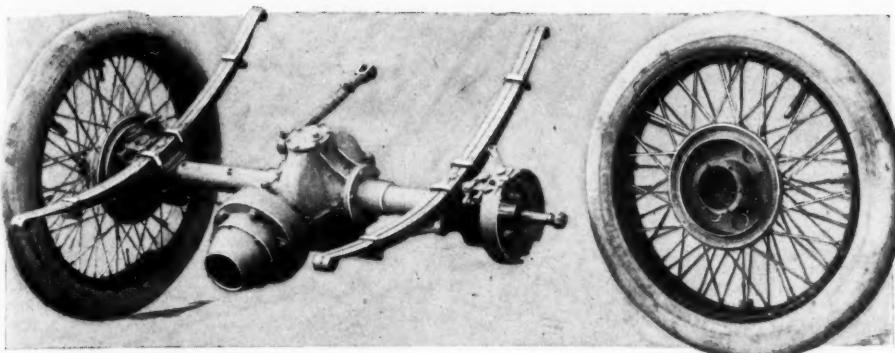
One of the new cars is the Globe, made by the Hitchon Gear & Automobile Co., a four-cylinder 14-horsepower light machine, with the usual pump water circulation, accumulator ignition, expanding brakes and so forth. The feature of this is the patent Hitchon transmission gear, which gives three forward speeds and reverse.

The Enfield people have brought out two brand new models, one a four-cylinder 15-20-horsepower machine, with the engine crank-shaft running entirely on ball bearing thrust blocks. An automatic carburetor, water circulation by means of a slow-running gear-driven pump, high tension accumulator ignition, special type of detachable clutch, which can be removed without dismounting the engine or gear box; three-speed gear box with shafts run-



THE THORNYCROFT FIRM'S

PRODUCTION FOR THE 1906 MARKET



ARROL-JOHNSTON BRAKE AND UNIVERSAL-JOINT SPRING DRIVE

ning on ball bearings, girder section front axle, propeller shaft to rear live axle, new type of tubular radiator with over 1,000 circular tubes, external metal-to-metal brakes and pressed frame. Ball bearings are used wherever possible and the wheel base is 120 inches, with side entrance tonneau. The main difference between this and the other model is that the latter is driven by a 24-30-horsepower engine.

On the new Pipe the inlet and exhaust valves are both in the cylinder heads and are operated by exterior tappet rods, with overhead rockers. These are seen on a 28-horsepower car with a limousine body and also on a 50-horsepower machine. Outside of this the general details remain about the same.

Frenchy is the word that well applies to the new cars of Charron, Giradot & Voigt, the C. G. V. cars having three-point suspension for the engine and separate three-point suspension for the gear box, internal expansion brakes, camshaft gear wheels enclosed, high tension magneto and ordinary accumulator ignition and improved design of chain tension rod. C springs will support the frame, an innovation for this concern, which is also bringing out a new model in a 14-horsepower car.

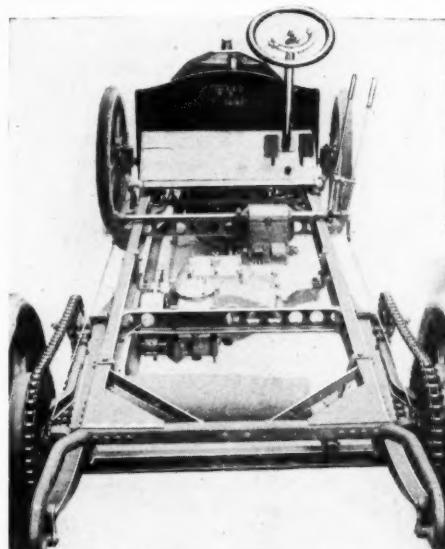
Unique among its fellows is a 40-52-horsepower Mors, which has seating capacity for eight persons. This French concern also has a town brougham with the 14-19-horsepower engine under the driver's seat, as well as a 24-32-horsepower double landaulet.

Handling the Albion for England and Wales, the Laere Motor Car Co. is introducing a four-cylinder 24-horsepower car with canopy top, which is declared to be more suitable for winter work than the cape cart hood. There is a glass screen in front and similar ones between the center and rear seats, as well as many other devices that are appreciated by tourists. The two-cylinder 16-horsepower Albion carries seven passengers and the driver and is intended for country house work and shooting parties. Grooved solid tires are fitted. There is another 16-horsepower Albion with an especially long wheel base and double landauet body, upon which many new things are introduced in the way of luxurious fittings.

Models turned out by Alldays & Onions' Pneumatic Engineering Co. all drive by live axles, have metal-to-metal expanding brakes and ratchet sprags. An 8-horsepower single-cylinder buckboard, three 10-horsepower two-cylinder rigs and a 16-horsepower four-cylinder car comprise

the line this concern has for the forthcoming season.

Cars, magnetos and engines are the product of the Simms Mfg. Co., the frame of the cars being partly of the armored wood and pressed steel variety, which carry a 26-30-horsepower engine. There is the pressure-feed system of lubrication and also a new style of cut-out for the low tension magneto ignition. The Simms-Bosch magnetos, both of the high and low



END VIEW CROSSLEY CHASSIS

tension type, are made by this concern, as are engines ranging from a 2-4-horsepower single-cylinder air-cooler to a four-cylinder water-cooled 100-horsepower engine. On the big fellow the valves and seatings are detachable and are carried in the cylinder heads, with overhead camshafts.

The horizontal engine is played up big

by James & Browne. In addition to their usual line they have brought out a four-cylinder 25-30-horsepower car.

A new type of Aster magneto is being turned out by Aster in addition to four models of cars. Some improvements are noted on the Aster engine.

Four models of Argylls are on the market for 1906, the Scottish makers turning out a new four-cylinder engine made entirely in their works. Besides this they have something fresh in the way of a ball-bearing back axle and a metal-to-metal clutch. Among other things considered improved are a new worm, quadrant steering gear, a rear axle casing of the T type, ball bearings throughout, new striker for the clutch, cam action to the rear brakes in place of toggle, roller bearings in the gear box and dust and water shields to the bearings.

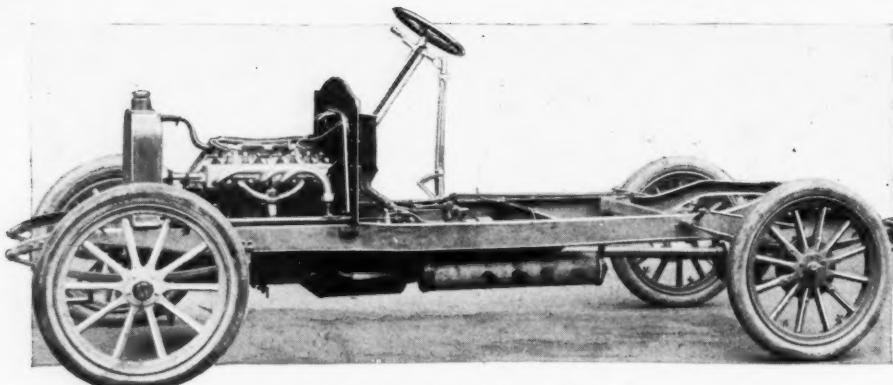
The Dennis worm drive is fitted to all types of motor vehicles from light pleasure cars to heavy buses. As shown in the illustration, A is the driving pinion on the differential. The driving pinion is on the differential, the worm pinion running between ball thrusts. The live axle is carried on ball bearings, and the whole is housed in a casing which connects with the axle casing, in which are the spring seatings, the latter forming a part of the brake spider, to which is fixed a double toggle to operate the brake drivers. There is also provided flow and return connections for forced feed lubrication to the worm and differential.

Minerva cars are 16-horsepower four-cylinder and 22-horsepower four-cylinder, pressed steel frames being used in both models. There is an undershield to the engine and gear and the drive is through live axles. Ball bearings are fitted to the gear box at all revolving parts. There is a slight droop to the frame in front which brings the radiator a little lower than the ordinary top of the frame. There is steering wheel control with a foot pedal operating the throttle. There is no pump for next year, the thermo-syphon system being relied on instead. The Eisemann high tension magneto, supplemented by accumulator and coil, is fitted.

Interchangeable camshafts, one on each side of the engine, are featured on the Chenard-Walcker cars, with the engine four-cylindered and of 16-20-horsepower. Direct drive on the top gear is secured and the gear is of the sliding type. Power is transmitted through a live axle and there is no strain other than that of driving.



THE DENNIS WORM DRIVE AND DIFFERENTIAL HOUSING



THE 15-HORSEPOWER DARRACQ CHASSIS

Then, too, there are thermo-syphon circulation, high tension magneto and pump-driven lubrication for other features.

Something new is the Bianchi, made by Straker & MacConnell, the models consisting of a four-cylinder 16-22-horsepower with side entrance double phaeton body; a single-cylinder 9-11-horsepower car with side entrance phaeton body and a two-cylinder engined motor cab with the engine under the driver's seat.

Synchronized ignition and a new Cupelle carburetor are features of the Cupelle line, while the four-cylinder 18-horsepower car has a patented lifting arrangement by which the whole of the underframe and gear can be examined. The light car is a 6-8-horsepower single-cylinder affair.

Talking points on the Singer line are many. In the six models, chief among them being a three-cylinder horizontal engine so constructed as to almost reduce angularity to a vanishing point. A direct drive is had on the second and third gears by an arrangement of planetary gears and clutches on one shaft, and the use of two side chains, only one of which drives for a particular gear. There is forced engine lubrication, one charge of oil being sufficient for 200 miles.

Aster parts, being interchangeable, are used throughout on the Whitlock-Aster cars, of which there are three types—two 12-14-horsepower and one 18-22. One of the former has a double landaulet body seating six passengers, with the rear portion so that it can be opened and closed at will.

Nothing smaller than a two-cylinder car will be made in the Belsize line. There is a three-cylinder engine capable of developing 18-24 horsepower, a four-cylinder 18-24 and a six-cylinder 30-40. In the three-cylinder there is a three-speed gear box to the live axle.

Separately cast cylinders, pressed steel frames of deep section, metal-to-metal clutches, ball bearings throughout, long springs and two push pedals, one operating the clutch and the other the footbrake, are featured on the Climax, of which there are two models—a 14-horsepower and a 20-22. Both the pedals act independently, so it is possible to use the engine for a break.

The Calthorpe Motor Co. has a new 20-horsepower model with a four-cylinder engine, ignition being by trembler coils and accumulators. A friction-driven centrifugal pump maintains the circulation and a fan assists the cooling system. The throttle control is on the

steering wheel and the clutch is of the internal type.

Metal to metal has been abandoned in favor of the leather-faced cone type of clutch in the 35-horsepower car put out by J. W. Brooke & Co. Half compression cams are fitted, coming into action automatically when the engine is turned over. The 15-20-horsepower four-cylinder model has internal expansion brakes to the rear wheel and a pressure-feed oil tank on the dash and a single outlet to the engine crankcase. Low tension magneto is used and the throttle is the only control on the steering column.

While the Humber models follow ordinary lines, there are one or two bright features such as high tension magneto ignition and four speeds forward and a reverse. These are found on the 16-20-horsepower Beeston models. The Coventry type is a 10-12-horsepower light car with a four-seated phaeton body, the ignition here being by means of coil and accumulator. There are three speeds and a reverse, with transmission by cardan shaft and the foremost universal joint running in an oil bath. There is more rake to the steering wheel and ball bearings to the back axle and front wheels.

In the Peugeot line are a new 10-horsepower landaulet and an 18-horsepower car. In the former is a two-cylinder engine governed on the throttle and fitted with either magneto or high tension or both systems of ignition combined. There are four speeds and a reverse and direct drive on top speed. An automatic oiler is part of the equipment. The other model has a four-cylinder engine, the cylinders being all in one casting. It has mechanical valves and centrifugal governor.

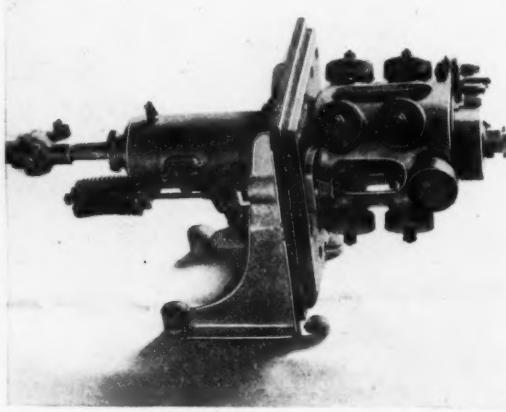
Four vertical cylinders of 4-inch bore

by 3-inch stroke and fitted with horizontal valves and low tension ignition are found on the Lanchester cars. The lubrication system employed enables the car to run 800 miles on one dose of oil. The Pugh-Lanchester patent radiator is a vertical cellular device, the cells being formed between two vertically ribbed sheets of metal fastened together at their edges.

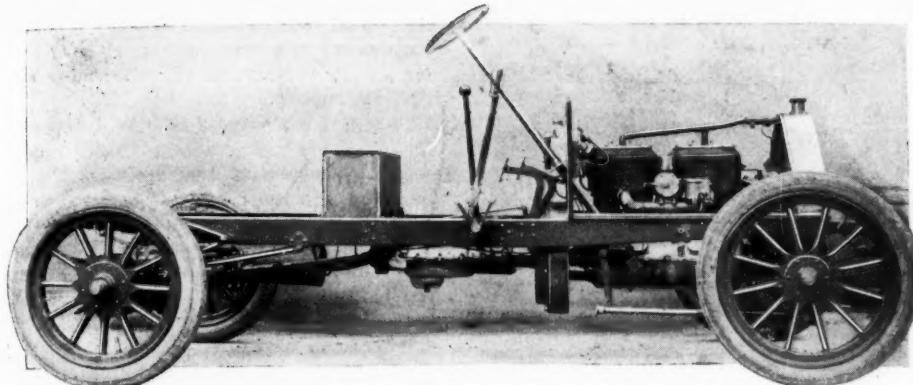
The most original type of car in the Olympia is the eight-cylinder Rolls-Royce landaulette, in which an eight-cylinder 20-horsepower engine is disposed below the driver's feet. In order to secure this, and also in order to simplify and cheapen construction, the cylinders are divided into two sets, inclined from the vertical at an angle of 45 degrees, and slightly staggered towards each opposing pair. The inclination, or, as it is generally called, reversion to the V type of engine, permits the adoption of a crankshaft in which the cranks lie in two planes, just like a four-cylinder engine crank—a very obvious simplification and cheapening in constructive cost. The staggering is induced so as to permit each pair of opposing pistons to work on the same crank. A peculiarity of the Rolls-Royce engine is that the valves are not inclined, but work vertically. Both induction and exhaust valves are set on the same side of the cylinder and mechanically operated. The sparking plugs enter the cylinder from the outer sides of combustion chambers.

Those with plenty of coin will appreciate the luxuriousness of the six-cylinder Napier, one of the most startling models being a 40-horsepower car of the Pullman type of limousine body, placed on a 125-inch chassis, with room for five persons in the rear and two in the front seats. Two revolving armchairs take care of the extra two in the rear. There are incandescent lamps in the roof, hinged wood tables on the sides, windows that open and shut and silk roller curtains. A 40-horsepower touring car is so constructed that when it is necessary to examine or adjust any of the working portions the complete body can be run back of the chassis. Luggage is provided for by boxes on slides fitting beneath the front and rear seats. Tool boxes are above and below the steps. There is a cape eart hood meeting the front glass wind shield. Another model is an 18-horsepower four-cylinder landaulet, while there is also on the boards a new six-cylinder 60-horsepower touring car.

It is announced that the Gladiator people will discontinue the practice of making a standard complete and will only turn out the complete chassis, which can be fitted with the customer's own idea in the way of a body. The company, too, will make its own four and six-cylinder engines hereafter. Nickel steel shafts are found in the gear box and ball bearings are used everywhere. A multiple disc clutch and the gate change-speed device are used. A foot accelerator governs the engine and the throttle lever is controlled by the clutch pedal, so that throwing out the clutch throttles the engine. On the four and six-cylinder cars the Gianoli high tension magneto is used, permitting of ready starting, the additional coil and accumulator being a reserve system of



ROLLS-ROYCE DISTRIBUTOR



LEGROS &amp; KNOWLES' IRIS CAR

ignition. Chain drive is found on the big cars, and the cardan drive is used on the others.

One cannot look at the de Dietrich models without seeing the new ideas which bristle forth. One camshaft looks out for the valves, which are all on one side of the engine, and the covers over the inlet valves form the ignition plates for the low tension igniters. The ignition plugs are at the top, instead of the sides. Instead of a honeycomb radiator there is an improved type of gilled tubing, and instead of being belt-driven the lubricating pump is driven mechanically. There has been a shaking up in the gear box and it and its gears have been remodeled, the gears now being of the sliding sleeve type, with the gate motion for the lever, but having the locking arrangement in a separate box. Gear shafts run on ball bearings, the brakes are internal expansion, the steering joints are adjustable, there is a pressure feed for the carburetor, with a hand pump on the dashboard, instead of the auxiliary tank found in the 1905 product. High tension magneto ignition, ordinary type of sliding spur gear wheels and leather-faced cone clutch are features of the 12-15-horsepower cars.

Some 300 pounds have been taken off the weight of the de Dion 15-horsepower model, which is a four-cylinder car with side entrance and double phaeton body. Each model, except the 8-horsepower machine, has gear boxes with sliding spur gears. The exception, the 8-horsepower, will be built on a tubular steel frame and the others of pressed steel pieces.

The Legros & Knowles car is one which has attracted some attention from British experts by reason of its soundness and the variations in its designs from last season as to induce enquiry regarding the causes for such. One of the main alterations is the substitution of live axle drive for chains on cars as large as 30 and 40 horsepower. A straight membered pressed steel frame is adopted, which naturally cheapens production somewhat. The axles, however, are novel, consisting of stout gauge tubing. The front axle is fitted with a core of solid ash. The rear axle is split to run into a differential casing in the center and carries ball-bearing axle boxes on the extremities. The differential gear is introduced by means of a large port in the rear of the casing and is accordingly capable of being dismounted if necessary without disturbing any other portion of the gear. There is nothing particular in the design of the four-cylinder engine save that the camshaft, which operates all valves, is fitted in a oil tight box, which can be removed from the engine by simply dismounting a few bolts and without disturbing any other portion of the gear. The Panhard change speed gear system has been abandoned for the Mercedes, as this gives shorter and stiffer gear shafts, but, of course, necessitates the gate system of change speed lever quadrant, since there are two separate change motions with the one lever.

Motor cycles and tri-cars, which form the main excuse for the Stanley show, are far more popular in Great Britain, and the

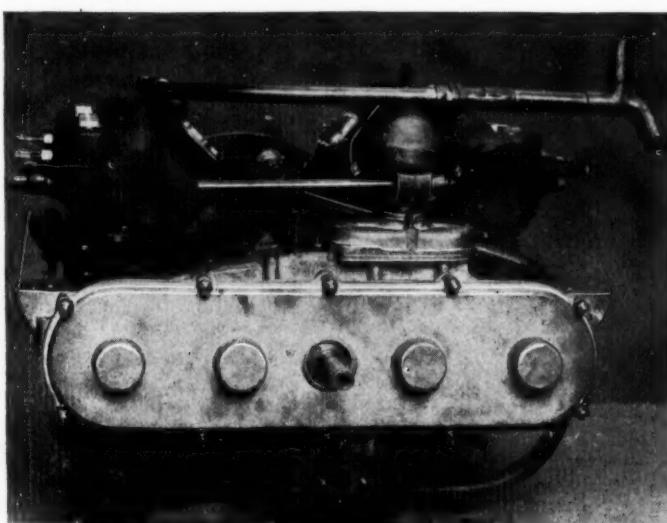
continent than they are in America. The Werner people are making two models of motor cycles— $3\frac{1}{4}$  and 4-horsepower twin-cylinder models. It is noted for 1906 there are larger gasoline tanks and wider mudguards, with ample clearance. Besides there are a couple of single cylinder models of  $2\frac{1}{2}$  and 3-horsepower. It is possible to get high tension magneto if one is desired, while the Werner spring fork is fitted to all models. The company also has a two-cylinder 5-horsepower tri-car.

The Triumph is of the 3-horsepower class, ball bearings being retained, while several improvements have been made in the engine. The Rex Motor Co. has a line of twenty motor cycles and Rexette tri-cars, as well as the new Aster 18-22 horsepower car. On the cycles there are the duplex spring fork, new muffler, vibrationless frame design, patent foot brake, enclosed spray carburetor and invisible push and pull levers. There is also the Rex triette, a light two-seated machine fitted with twin-cylinder 5-horsepower motor.

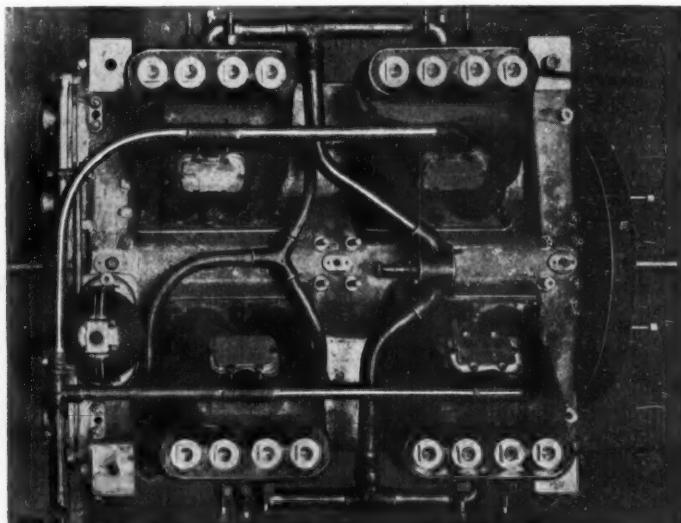
A four-cylinder  $3\frac{3}{4}$  and  $3\frac{1}{4}$  machine is the Durkopp motor cycle, one of the former being fitted up as a tradesman's carrier. The motor has a novel system of magneto ignition and there is also a laminated spring fork of merit. One, two and four-cylinder models of the Kelecom motor cycle are made by the Crypto Car & Cycle Co. The 4-horsepower cycle has band brakes on both wheels, while the other two have bevel gear drive and magneto ignition.

Among some of the most prominent devices in the motor cycle line are the Pullman non-skid band, the Lithanode accumulator, the L. A. C. spring fork attachments, the Watawata belt, Coan's aluminum castings, and a new form of trailer which, it is claimed, can be detached in 60 seconds.

Motor car and motor cycle accessories, bristling with innovations, are met with on every machine to be exhibited. New coils of the single and multi-vibrator class are common, spark plugs in every variety are encountered, and low and high tension distributors have their usual following. Centrifugal pumps in endless design are encountered, and carburetors in every conceivable form are used.



END VIEW ROLLS-ROYCE EIGHT-CYLINDER MOTOR



TOP VIEW ROLLS-ROYCE MOTOR, SHOWING PIPING



## TENDENCIES IN AUTOMOBILE BUILDING

AFTER a careful study of the cars exhibited at the Olympia and Stanley shows in London, the one tendency which appears to be at all radical is that of putting the motor under the driver's seat, a plan adopted on some closed vehicles. As a matter of fact there is hardly a new thing in the English shows—that is, new to American builders—for large wheels, large tires, bevel gear drive, horizontal motors, and even motors under the driver's seat are not new here. The fact that a few cars will be fitted with the motor in any place other than under the bonnet in front will at least be a justification for the theories of one pioneer American maker, Charles E. Duryea, who has all along made claim that this is the only place for the motive power in an automobile. Duryea has stuck to the idea of large tires and at one time fitted his rigs with C springs, so that the innovations of the foreign maker of today are by no means innovations here, and if these new things abroad satisfy the popular demand it will be but an endorsement of Duryea's many pet theories for several years back.

It is evident the bevel gear drive is gradually becoming more popular both with the public and with the buyer, but the tendency of many makers to fit this form of final drive to their cars will by no means drive out the double side chain final transmission for a long time to come. There are so many things in favor of each that it is a matter of individual choice as to which is the more satisfactory for motor car construction.

The placing of motors under the driver's seat is such a radical departure for many concerns that it is a little out of what might be called the ordinary, and it will at least be interesting to hear the arguments which will be advanced for the change on the part of those makers who have altered their views on automobile construction. Some foreign makers have set aside all the arguments and have had the temerity to build other than vertical motors, one or two following out another of Duryea's ideas in constructing an oblique motor, or rather a V-shaped motor of eight cylinders, or two oblique motors made into one.

There is little tendency to build smaller powered cars, for it has been found the demand has been for more power, though not necessarily for more speed. There is a noticeable desire on the part of the foreign maker to turn out cars capable of accommodating at least four and in some in-

stances six people within an up-to-date enclosed body of luxurious design and made with all the comforts that might be discovered in a Pullman coach. There is a reason for this desire on the part of the maker, and that is a demand for such things. And there is a reason for the demand, and that is that people who can afford to own such cars find it more comfortable to travel in such vehicles than in the ill-smelling and slow-going horse-drawn affairs, which, to accommodate an equal number of people and to afford equal comfort, must be ponderous affairs and must be hauled by not fewer than four equines and then at a pace that would by no means suit even the easy-going Englishman.

It has been the complaint abroad that motor cars of recent manufacture were, if anything, too long in wheel base to be easily handled in all sections met on a long tour and particularly where roads are narrow. As a result there has been some tendency toward shortening rather than

lengthening the wheel base, whereas, in this country, the tendency has been to increase the length of the wheel bases for the 1906 trade.

There have been few really important changes as far as motor design is concerned, other than that mentioned above, and little in the matter of changes in construction, except, of course, the natural advancement in the matter of workmanship and material and the proportion of parts found necessary to be altered after several years of study on the part of makers and designers.

The visitor to the English, French and American shows of 1906 cars will not be as much impressed with the changes over this year's machines as he was with those of this year over those of last. It is but natural that the changes in design and construction should come by degrees now, whereas heretofore the alterations came with a rush. There will, however, be a marked improvement in bodies, for the comfort and convenience of the motor car user are now being given the attention that has heretofore been lacking on the manufacturers' part.

The maker and the user believe today that the motor car is pretty near a state of perfection. As a matter of fact the next decade will see so many changes that the present day car will be quite as crude, compared with the car of 1915, as the 1895 car is today. The makers are endeavoring to outdo one another in the matter of constructing fine cars. This is brought about chiefly because of the intense competition that is beginning to assert itself, but it is a fact that more than one maker is endeavoring to reach the top rung of the ladder of motor car construction and to be looked up to as a model for comparison.

## CHEAP CAR NOT A DISTURBING ELEMENT

THE announcement that the Ford Motor Co. would produce a four-cylinder 15-horsepower car at a price under the half-thousand mark has not disturbed either the retail automobile merchant or other makers. When the announcement was first made it created almost endless talk and with some of the dealers handling low-priced cars there was more or less consternation. That was before the matter had been thoroughly considered in all its lights and side lights. So far as Motor AGE has been able to determine the marketing of this car can have no particular effect on the automobile trade unless it is of a beneficial nature. The competing manufacturers might have been expected to say unpleasant things of the company responsible for this low-priced car, but such is not the case to any great extent. As a matter of fact some of the manufacturers, even of low-priced runabouts, seem content in believing that this act will bring into the market the prospective buyer who has waited 4 or 5 years for the price of automobiles to come down.

Many manufacturers of the higher priced cars seem to consider the Ford company's movement to be a means of feeding the market; that it will make purchasers who will sooner or later desire larger powered and more expensive cars to meet what they believe to be their requirements.

The quality of the car cannot be estimated at this time, inasmuch as the first sample has been dismantled and until the automobile show takes place in New York the public will not feast its eyes upon this production. The maker of the car is certainly a well-known concern and has a reputation it can by no means afford to lose. If it proposes to maintain that reputation the car must be well worth the price asked for it, and it is not reasonable to suppose that any corporation which has had the experience of the Ford company would deliberately wreck its reputation by producing an article that would not bear criticism and stand up under the work it is proposed to give it.

It is too early to form an opinion as to what the effect of the introduction of such a car will be upon either the manufacturing or retail end of the business. That opinion can only be formed after the car has been placed in commission and has shown what it will stand. If the maker puts out a car that will sustain the maker's reputation, the possible effect will be a lowering of prices, particularly as far as runabouts are concerned. On the other hand it may be argued that a car of this grade and price will be the means of producing so many automobilists that there will be little chance to even supply the demand for all grades of machines.

# JUMP SPARKS

Two miles a minute sounds faster than a mile in 30 seconds, anyway.

That "D-n it, do something" advice did do something—it gave Chairman Bob Morrell a dinner.

According to Olympia show reports, bonnets are no longer being advocated by our best automobile milliners.

England's Tourist trophy race has been run and won, and now it is announced that so far the trophy exists only on paper. Fawney that, now!

Clemens and Merz nearly froze smashing long distance records. Now they know how Peary must feel trying to locate the north pole in an automobile.

Indians running a motor car bus line is the latest. Turn about is fair play—let the white man break loose from the reservation and give us a modern stage holdup.

No trouble is anticipated from the rival shows in New York, but just the same it will be necessary to call out the militia before the A. C. A. exhibition can open its doors.

When New York had to resort to an armory to accommodate automobile exhibitors, Chicago thought it wise to keep up with Gotham and also secured an armory to help out.

Going on the reports of factory improvements and new garages being built, the architects and real estate Jack Horners are pulling some mighty big plums out of the motoring pie.

It is pleasing to some Americans to note that the English makers have, for the coming season, adopted designs long ago discarded by Americans. If they were good, why didn't the Americans stick to them?

The English Daimler concern lays its profit making success to the fact that it has not dabbled in the racing game. But it forgot to mention that the German Daimler concern, and the Fiat, which is the Italian Mercedes, dabbled enough to give the English concern, a whole lot of free advertising.

Senator Morgan objects to cash prizes at Ormond. It is indeed to laugh.

Modern motor car designs are about as changeable as women's fashions.

Show spaces are as hard to get as tickets to the Thanksgiving day football games, only that in the case of the automobile maker there is no scalping being done.

Lancia is coming to prove his title to the speed throne. It wouldn't take many more affidavits like the Bennett and Vanderbilt to convince even the most skeptical.

Another attempt on the Chicago-New York record has petered out. But just think of all the dollar-a-line stuff the promoters of the affair got out of the dailies.

John D. Rockefeller is bemoaning his luck in not getting next to the fact sooner that he could eat cheese without injury to his stomach. His next cause for regret will be that he did not get wise to the joys of motoring in time to be numbered among the pioneers.



**THE WEEK IN BRIEF**

Henry Fournier secures control of Itala car, made famous by Florio cup race, and will put it in all big competitions; will place agency in New York.

More records broken by National car, Clemens and Merz smashing Vaughn's marks from 650 to 1,000 miles as well as 24-hour record.

Armored military car, with conning tower and rapid-fire gun, made by Daimlers, given satisfactory test in Germany.

Trouble experienced in Cleveland over show, dealers' association being tied up by outsider holding option on armory.

Balance sheet of English Daimlers shows net profit of \$415,000 for year, figured to be gross profit of \$1,000,000 to the car.

English shows open, Olympia at Olympia hall and Stanley at Agricultural hall; French makers well represented.

Lancia announced as positive competitor in Ormond meet; Clifford Earp coming over in place of Macdonald.

Coliseum show in Chicago so big Manager Miles is forced to secure First Regiment armory as annex.

Attempt on Chicago-New York record by Bertrand abandoned at Cleveland because of bad roads.

Space allotments for A. C. A. show in New York and national at Chicago announced.

Rival trade associations in Philadelphia consolidate and will hold show.

Megargel on way to Los Angeles, Cal.

We have new marks for 1,000 miles and for 24 hours and they're National records, too.

From all the ante-Ormond talk going on, 1906 can go down in history as the two-mile-a-minute year.

Megargel did not go to San Francisco from Portland under his own power—he cut across lots by taking a steamer.

We've had hill-climbs galore. Why not put on one of those coasting matches so popular in cycling days? Senator, where art thou?

If the steamship companies allowed the motorists to go on the docks with their tanks full, could the latter be arrested on a drunk and disorderly warrant?

The supper shows of the motoring calendar for 1905 come on Thanksgiving day. Those hill climbs will be admirable chasers for the real doings right after the holidays.

Probably the band will be instructed to play "Mistress Mary, quite contrary, how's your garden show?" on the opening night of the Selden affair in New York next January.

The only solution of the show space question is to hold open air exhibitions in 10-acre tracts during the summer time. Perhaps by this means exhibitors would have all the space they ask for.

President Farson proposes to furnish each member of the Chicago Automobile Club with a card which shall absolve him of going to the station when pinched for a violation of the speed ordinance. Why not go this one better and sell tickets good for ten arrests for \$10, say?

While the automobilists of Chicago are being held down to a speed limit of from 10 to 12 miles an hour under penalty of arrest for reckless driving, the street cars and horse-drawn vehicles of the windy city keep up their death harvest, not fewer than three deaths having resulted from these sources last Saturday. It is evident that Mayor Dunne is not as antagonistic toward the street car corporations as one might suppose.



## TRADE MELON IS CUT

### English Daimler's Balance Sheet Shows Net Profit for 1905 of \$415,000 on Some 500 Cars

London, Nov. 11—The publication of the Daimler company's balance sheet has caused something akin to a mild sensation in motoring circles this week. It was known that the company had had a good year, but how good came as a regular eye-opener to most people in and out of the motor trade. The company was among the first motor floatations in this country. It was the bantling of H. J. Lawson, who is now an involuntary guest of His Majesty, King Edward VII, and was floated in 1896 with a capital of \$500,000, to manufacture cars under the patents owned by Gottlieb Daimler. Lawson took \$200,000 in cold coin for those rights, and nobody has yet managed to prove that they were worth 200,000 cents. The public put down its cash, however, and from that day until this no return has ever been got from the investment. It is, perhaps, interesting to note that Henry Sturmy was one of the original directors.

The concern lived a sort of moribund existence, making no cars for some time, and then Lawson and his lot were shot out. But money was wanted and no money could be had. Change followed change until Sir Edward G. Jenkinson managed to enlist the services of Percy Martin as works manager a few years back. He came from your side of the Atlantic and deserves no little credit for the success the firm has achieved. Under his management the designs were simplified, standardized and reduced to a couple of types—and good ones at that. The drift was stopped and the ship began to pick up leeway. The king bought a Daimler and the trade wind freshened until 2 years ago it was felt possible to financially reconstruct the company with some hopes of reclamation. It was fairly well engineered and at the end of a year the first profit earned was disclosed something less than \$40,000 on a capital of \$5,000,000.

That was put aside and more working capital secured by preference shown special concerns and as a result a gross profit of \$345,000 and a net profit of \$415,000 were earned. This is a most remarkable result, for it is doubtful if the output of the Daimler factory for the trading year it covers could exceed 500 cars, so that the gross profit per car must have been close to \$1,000—pretty fair in a year which the directors consider was one of great competition. For next year more capital is being called up, despite a created reserve of \$150,000; the factory capacity is being quadrupled—\$125,000 of fresh buildings and plant having been acquired—and the prices are to be cut about 15 per cent. The directors at their meeting yesterday were most emphatic in asserting that their figures were in no small measure due to abstention from the costly racing game which others had pursued in the belief that it was necessary to do so in order to prove that their cars were high grade. But many think Percy Martin's commercial talent is entitled to much more credit

for the success than the directors' policy.

The Daimler profits following so closely on the figures disclosed by the Scottish Argyll concern are regarded as likely to lead to a promotion and floatation boom. The peculiarity about these successful concerns is that the Daimler has made its money on selling high-powered, comparatively high-priced cars, while the Argyll profits have been earned out of moderate-priced, medium-powered cars.

### BERTRAND TRIAL ABANDONED

Chicago, Nov. 18—If Bert Holecomb's record of 58 hours 35 minutes between Chicago and New York is beaten, another attempt will have to be made, for the Clement-Bayard trial for the coveted blue ribbon mark had to be abandoned the first day of the drive. With Clovis Bertrand at the wheel and with A. G. Schmidt as a sort of aide-de-camp, the French car started out from Chicago early yesterday morning, but got no further than Ohio, where the trip was checked for the time being because of the miserable condition of the roads. Bertrand and Schmidt got as far as Dover, O., when they became convinced that they had chosen the wrong time for their trip. About half the time they were running on two wheels and the other half they were picking themselves out of the ditches into which they skidded with aggravating regularity. Then, too, the mud continually spattered up on their goggles, effectually blinding them. Therefore, all things considered, the pair decided to quit, traveling into Cleveland in a trolley car and leaving the car in a handy shed near Dover.

### LANCIA TO BE AT ORMOND

New York, Nov. 23—Special telegram—Lancia will be at the Florida meet and also compete in Cuba. Negotiations to this end have been concluded by the Hollander & Tangeman and Lancia will come on with George R. Tangeman on his return from his trip to Paris and Turin. Lancia is to have at his disposal both of the Fiats which were piloted by Nazaro and Cedrino in the Vanderbilt race.

According to advices from England received by Morgan, Clifford Earp is to drive a six-cylinder Napier at Ormond in place of Arthur Macdonald, who will be unable to make the trip this year.

Carl Fisher is to pilot a six-cylinder National. It is reported here that George Robertson, who piloted the Christie in the Vanderbilt race, has been engaged to drive the Premier, which failed of completion in time in the elimination trials.

### QUAKER TRADESMEN UNITE

Philadelphia, Pa., Oct. 20—The Philadelphia Automobile Trade Association and the Philadelphia Automobile Association were to-night amalgamated under the name of the former. The new organization includes nearly every dealer in automobiles and accessories in the city. New officers will be elected at the next meeting, December 2. Dealers in accessories will be admitted as associate members. It is also intended in the near future to admit owners to associate membership. It was definitely decided to hold the next show in the Export Exposition building.

## TURNS A SHOW TRICK

### T. C. Whitcomb Secures an Option on Gray's Armory in Cleveland and Ties up His Rivals

Cleveland, O., Nov. 21—Cleveland's local automobile show has been scheduled for the week of February 19, but as to who will hold it and the character of the exhibits, are at present matters of some conjecture in the minds of some people. The Cleveland Automobile Dealers' Association secured the sanction from the national association and has its plans perfected for holding the show the week mentioned at Central Armory. Now comes one T. C. Whitcomb, a local dealer, who claims he holds an option on the big armory for that week, and who says the association will not hold the show, except on his terms and that if they do not accept his terms he will hold an independent show of his own. Thereby hangs an amusing and somewhat lengthy tale.

During the past 2 years the local shows have been held at Gray's armory, under the auspices of the Cleveland club and the dealers' association. Last year Mr. Whitcomb conducted an opposition show in a neighboring large building. He claimed that he was never invited to participate in the big show; then when he heard of the plans he tried to get in, but that his application for space was turned down. So he held his independent show. The association officials claim this was done for effect and that Whitcomb was invited on the same terms as other dealers.

As he related it to a MOTOR AGE man the other night, Mr. Whitcomb says that he determined, after the show last year, that he would get the independent makers and dealers together and hold a big show this winter. He claims that he went to Major McQuig, who was in charge of the Central armory, and, in the presence of witnesses, obtained a verbal option for the use of the armory for the "same week that the association was to hold its show." He also claims he gave a check for a deposit, which, he says, has since been returned to him as paid. This, he believes, constitutes a legal option. The association would have selected Gray's armory, as usual, but for the fact that it was not available. It applied for the use of the Central armory and secured a written option for the week it specified; it appears, however, that it dealt with another man from the one with whom Mr. Whitcomb had dealings.

But despite their written option, the association officials appear to be somewhat dubious over Whitcomb's claims. W. L. Colt, chairman of the association show, made overtures for a peaceful settlement. He proposed that Whitcomb come into the association on the same basis as the other members, paying \$90 for a share of stock, thereby participating in the profits of the show. Whitcomb claims the majority of the other dealers only paid \$10 a share for their stock and says, as a matter of fact, he does not want to join anyway. He offered to join hands with them without joining the association, providing he was given a share in the profits in return for his option. He also wanted the choice of

spaces. Thus far the parties have failed to get together. Whitcomb says he will go in only on the terms mentioned and the association members decline to consider the proposition. Whitcomb says he will enjoin them from using the armory, and says he is satisfied he can get up a good show among the independent manufacturers are members of the organization, and use of support from a number of manufacturers if he goes into it. The association claims that fourteen prominent dealers are members of the organization, and that without these, and the goods they represent, a show would be a mere farce.

#### NEW TOURIST TROPHY RULES

London, Nov. 11—The draft of the rules for the Tourist trophy race of 1906 has just been published. It is stated by those who generally guess fairly correctly on matters before the automobile club councils that the race will be run off in the Isle of Man on May 3 next. Minimum weight of chassis is still fixed at 1,300 pounds, but no maximum is laid down. The main endeavor in the new regulations seem to have been directed toward reducing the possible pace to be obtained, for not only is the fuel allowance reduced to a 25-mile per gallon limit for gasoline cars, but the number of change speed gears is limited to four, save where an expanding type is used, and each car entered will be required to drive on the level at a pace of 12 miles per hour or slower, without slipping the clutch, in order that the top gear may not be made a mere racing ratio for dropping down the mountain sides.

Another new regulation is that no exhaust release must be fitted to the muffler. The load to be carried by each car has been raised to 1,100 pounds, as against 950 pounds in September last, and in order that, as far as possible, standard bodies should be fitted, the backs of which shall have a minimum height from the ground of 49 inches.

The actual trophy, which is not yet in existence, is to take the form of a reproduction of the statue of Hermes in the South Kensington museum.

#### FIGURES FRANCE'S CAPACITY

London, Nov. 11—Apropos of the calculations of Georges Prade and the output of the French motor factories, Paul Sentier has been investigating the product of French factories that are exported in chassis form to appear under British and other alien names. He estimates that France has twenty large factories of this class, averaging two chassis per day, equal to 1,200 monthly; fifty more, capable of producing one chassis per day, or 750 chassis per month, and so, in all, he computes that France produces 25,000 chassis per year, of which France absorbs 8,000, leaving 17,000 for export.

Of this he believes that 7,000 or 8,000 come to England, as every French factory of this type has been working at full pressure during the past year and many have all their possible output contracted for up to the end of 1906. One critic has endeavored to analyze Sentier's figures in conjunction with the board of trade figures, and they don't convince him that the Frenchman, Sentier is right.

## SHOW NOW SEEKS A GO

#### Brilliant Plans for 1907 for Big Exhibition in France are Revived By Parisians

Paris, Nov. 9—For nearly 12 months efforts have been made by French sportsmen to organize a great sports exhibition in Paris, but the movement has met with so little success that one is inclined to doubt the old saw that "where there's a will there's a way." The government said that a great international exhibition of everything connected with sports, but more especially of automobilism, should be held in 1907, and ordered a parliamentary commission to draw up a scheme. It was apparently not a difficult matter, for a paper plan was soon put before the public, and charmed all by its vastness and completeness.

The big plot of land, near the center of the city, bordered by the river Seine, and having on it the greatest landmark of Paris, the Eiffel tower, was fixed upon as the exhibition ground. The base of the tower would form a unique main entrance, large exhibition buildings would be built, the great Machinery hall left over from the 1900 world's fair, and one of the largest buildings in the world, would be available, and right around the exhibition ground would be constructed a track for automobiles, cycles and horse races. A harbor was also to be built on the Seine within the grounds, for the convenience of motor boats.

But the brilliant plan no sooner came to light than it had to be withdrawn, for the Paris municipal council, to which the Champ de Mars belongs, refused to give it up, even on a government request. Great efforts were made to move the stubborn body of city rulers, but neither persuasion nor threats, nor ministerial influence could move the city council in its decision. Other spots just outside the city boundaries were proposed, but only met with half-hearted support, owing to their distance from the center. Lately there appears to have been a softening among the obdurate councilors and the Champ de Mars scheme is again being brought forward. The organizing committee has just held a meeting and decided unanimously that an exhibition shall be held in 1907; that it shall be held in the center of Paris, and that the Champ de Mars shall be the ground. The latest scheme put forward is one with an estimated expenditure of \$4,000,000 and \$6,000,000 income. It provides for the erection of two large halls, which will remain permanently for various exhibitions, the utilization of the great Machinery hall for the automobile exhibit, and a central portion reserved for three tracks, one being for automobile races, another for foot races, and the third for Olympic games.

The Automobile Club of France has got hold of a really good idea in its town vehicles' competition, to be held on December 21, during the automobile salon. It is in reality a touring contest through the city of Paris. The thirty odd competitors will be started off at the doors of the Grand Palais and will run 62½ miles over the streets and boulevards

of the capital, passing the starting point twice during the run and finishing at the same depot. The award is based on regularity of running, consumption, elegance, simplicity of construction, and suitability for town work. Every stop for any cause whatever, apart from tire troubles, will be penalized, and in order that controlling may be more reliably done it is proposed to ask the prefect of police to allow a cyclist policeman, having a chauffeur's driving certificate, to accompany each car. Both gasoline and electric automobiles are entered for the competition and the same rules will apply to both classes of vehicles.

#### CHANGING FRENCH LAWS

Paris, Nov. 9—Whilst waiting for the important and busy season of the annual shows, French automobilists have but the question of changes in the existing laws to occupy their attention. It is certain that shortly modifications of the existing regulations will be published, for the assurance to this effect was given yesterday in the senate by the minister of the interior. Senator Gormot has placed himself at the head of the reform movement in France and has not thereby made himself beloved of automobilists. The senator asks that the present law limiting the speed of automobiles to 12½ miles in towns and 19¾ miles in the open country should be enforced, and in his reply the minister of the interior gave an assurance that this would be done.

"We cannot put it below 12½ miles an hour," said the minister, "for many horses reach that speed." He did not say anything about enforcing the present 19¾ miles limit for the open country, for it is admitted by even opponents of automobilists that such a restriction is nothing short of ridiculous. Short-sighted, drunken and law-breaking individuals will soon not be allowed to drive automobiles in France, and when a driving certificate has been withdrawn in one department it will not be possible to skip across to the next legislative district and obtain a fresh one. Youthful prodigies will not be encouraged, for until the age of 18 years no person will be allowed to drive a 35-horsepower automobile. From 21 years of age the chauffeur may drive a car of any power whatever, provided he has first of all gone through an apprenticeship with moderate-sized vehicles. Manufacturers of sirens will be sorry to hear that this device is in great danger of being abolished. A parliamentary commission which has been studying the question has declared in favor of the suppression of the horn also, at least for town work, substituting a bell for it, but giving chauffeurs a liberty of choice when in the open country. Registration numbers under the new French regulations will have to be painted on the car itself and not consist of a movable tag.

#### HILL CLIMB OFF

New York, Nov. 20—Owing to the late date, the lack of urgent demand by the trade, the poor condition of the hill, and W. J. Morgan's numerous other engagements, the senator has decided to abandon his project of promoting a hill climb on Eagle Rock on Thanksgiving day, leaving the east without a holiday event.

## TAG END OF LONG TRIP

### Megargel and Fassett Almost Starve in Barlow Pass—Take 4 Days To Go Last 100 Miles

Palo Alto, Cal., Nov. 23—Special telegram—The Reo Mountaineer party reached here last night. It will be in Los Angeles about Saturday. We went from Portland, Ore., to San Francisco, leaving the latter city Monday morning for Los Angeles on our way home.

Speaking about strenuous automobiling, I think Fassett and I had 4 days of about as active mountain motoring as any man has yet tasted just before reaching Portland. Fassett said not for \$500 would he undertake another trip across the Cascades at this season of the year, and Fasset is a pretty game boy, too. The Reo Mountaineer pulled out of Wapinitia early on a Monday morning for the 100-mile run to Portland. The Reo Mountaineer can go 35 miles an hour and has done so, but she didn't on this trip, nor could any other automobile. We carried grub enough for four meals and as we spent Monday, Tuesday and Wednesday without coming to a human habitation, it is needless to say on two of those days we went without food.

The road from Wapinitia to the edge of the timber, kept in good order by the numerous teams carting in the winter's supply of kindling wood, was excellent sailing and our car bowled along merrily until we ran into the timber. Even then for the first 10 miles it was not so bad and we did not have to get out but twice to build up over stumps or rocks. Then we came to the first fording of Salmon river.

It took a couple of hours to do it and it was dark when we stopped at the top of the embankment, but we had forded our first stream. We had been informed that we had this same river to ford five times and that it was worse fording at every ford we came to. We found this true.

While Fasset was draining the water out of the carbureters and incidentally taking out our wet supplies from the tonneau, the water having come almost to the top of the tonneau, I busied myself constructing a hut of logs and boughs, such as I was wont to build in the woods around Scranton, Pa., in my boyhood days.

Our supply of firewood gave out about 2 a.m., and the snarls and growls that we had heard at a distance early in the evening were heard closer and closer until I sat up and fired my Winchester several times in their direction, then, taking advantage of the confusion, jumped out and got more wood for the fire, expecting every minute to feel a cougar or bobcat come down from the trees above and land on my back or shoulders, for, according to the

old inhabitant, that's the way they do. Nothing of interest happened after that except we cooked and ate the remainder of our food for breakfast at daylight.

We were just about to build a camp for Wednesday night when we saw a sight that almost brought tears to our eyes. It was smoke arising from the treetops half a mile further. Whether Indians or white men we didn't much care, for we were commencing to know what real hunger was. It proved to be the United States government camp on Mount Hood and we were made heartily welcome by Father Yoakum and his wife, who live on the mountain top the year around.

At first we had a hard time to make them believe that we had actually automobile over the Barlow pass and over Mount Hood, considered impassable for



TEAMING IN THE MOUNTAINS

MEGARGEL IN WESTERN WILDS

even teams in November, but I guess the manner in which Fassett and I stowed away grub that night fully convinced them that we had been doing something out of the ordinary, while the Reo Mountaineer, with muffler gone, tire chains on the rear wheels and covered from end to end with the sticky, yellow clay that lay underneath the soft snow on the mountain road, was a mute witness to the struggle we had gone through together during the past 4 days.

The run from the top of Mount Hood down to Portland, a distance of 60 miles, was easily made the next day and our reception in Portland was well worth the troubles we had gone through on our long trip.—PERCY F. MEGARGEL.

## JAUNT A FRUITFUL ONE

### Senator Morgan, Back from Florida, Talks of Promising Outlook for Winter Show and Meet

New York, Nov. 18—Senator Morgan got back from his flying trip to Florida today, filled with enthusiasm over the prospects of the southern circuit. His first stop was at Jacksonville, where he arranged to undertake the management of the automobile show to be held there January 4-18, in connection with the food show exposition. An exhibition building covering an entire block diagonally opposite the Windsor hotel, is to be erected, a section of which is to be devoted to the display of motor cars.

"There are now ninety-five automobiles in use in the Florida metropolis," said the senator. "To the best of my recollection the cars represented by agencies are the Rambler, Maxwell, Ford, Olds, Northern, Mitchell, Cadillac, Winton and White. Of these, the Rambler, Olds, Mitchell and Northern have already taken space. So has the Napier. With the new roads contemplated in Florida there is a big chance now for makers to get a foothold there. There will be visitors to the show from Atlanta, Savannah and all the Florida cities and the show will be visited by winter travelers en route to the east and west coast resorts."

From Jacksonville Morgan went to the course and spent 2 days at Daytona and 1 at Ormond. He found the utmost harmony prevailing between the rival towns and all hands enthusiastic over the fine card laid out for the meet. The senator found the beach in splendid shape. There had been a storm 3 weeks ago, which cut away the beach clear to the bluff and added fully 30 yards to the width of the course. He says there was not a sign of red sand on the whole 15-mile stretch on the beach.

Ira Paine, of Minneapolis, the new president of the Florida East Coast Automobile Association, has already taken possession of his cottage at Daytona, and E. M. Steck, the club's former president, has taken down the "To Let" sign and will again occupy his Daytona winter residence.

Morgan's mail indicates great interest here and abroad in the coming tournament. The Hughes Automobile Co., of Cincinnati, writes for particulars about the heavyweight steam and touring car events. He had also a communication confirming the intention of the Darraq people to send over a great flyer to make a bid for the 2-miles-a-minute speed crown, and the other important events of the meet.

Floridians, by the way, have taken to the 2-miles-a-minute race idea with enthu-

siasm. The Jacksonville metropolis is to start a voting contest to pick the prettiest girl in Florida, to whom shall be given the honor of placing the golden wreath on the brow of the victor. One penny per vote is to be devoted to the purchase of the crown, which is guaranteed to cost not less than \$350, and is now being designed by a jeweler in this city.

It is now announced that Renault Brothers are building a special car in France for the 2-miles-a-minute race, of much higher power than that piloted by Sisz in the Vanderbilt race, which Maurice Bernin is to drive in that and other races in Florida and Havana. There are stories afloat that W. K. Vanderbilt, Jr., has been trying out the Hemery Darraeq, which was not sent back to France. The inference is that he still has Florida beach speed aspirations buzzing under his bonnet.

While in Florida the senator had a conference with the Palm Beach powers that be, which resulted in the determination to again run a motor boat carnival in Lake Worth. It will last 3 days and is scheduled to begin on the Tuesday following the close of the beach races. It is probable that there will also be 1 or 2 days of motor boat racing at Miami, the senator says.

All idea of a motor car race between Palm Beach and Miami over the new road, which will be completed on January 1, has been abandoned by the promoter.

E. J. Conill has leased the Clement-Bayard car, in which Albert Clement finished a close second to George Heath in last year's Vanderbilt race, to represent him in the Cuban carnival and Havana cup races. Senator Morgan plans to have the 200-mile race for the Havana cup take place on Sunday, February 11, and wind up the Cuban carnival week, instead of beginning it. This will get contestants and visitors home a week earlier than originally planned. The idea is to have the floral parade on Sunday, February 4; the 2-day tour of the island on Monday, Tuesday and Wednesday; gymkhana contests on the Prado and Malecon on Thursday, and sprint racing on the course on Friday, winding up the meet.

The Itala car, which won the last Brescia race, covering the 311 miles in 4 hours 46 minutes 47% seconds, an average around 64 miles an hour, is to be a competitor at the Ormond-Daytona meet. Signor Maurice Fabri, who is here seeking to establish an American agency, and was a competitor in the Brescia contest, says he will bring the car back with him on his return from the Paris show and drive it in Florida. The cable, by the way, brings the news that Henry Fournier will again be at the wheel in road contests. He has taken on the Societe Paris Automobile, the Itala agency, and will establish branches for that company in Berlin, Rome, London, Nice, Cannes and New York, and have his representatives exploit the car through competition.

## NEW MARKS ARE MADE

### National Car, Driven by Clemens and Merz, Smashes Vaughn's Long Distance Records

Indianapolis, Ind., Nov. 18—One more record or rather a series of records was added to the National collection at the completion of an attack on the 24-hour mark which was completed at 2:45 o'clock yesterday afternoon. Week before last—on November 4—Jap Clemens smashed the world's 100-mile mark, doing the distance in 1 hour 53 minutes 21 $\frac{1}{2}$  seconds. The latest National performance, in which Charles Merz and Jap Clemens participated, was the breaking of the figures put

maintained. In all 2 hours 54 minutes 12 seconds were taken out this way, while Vaughn only stopped 1 hour 44 minutes 4 seconds in his record drive.

Originally two National cars started in the attack on Father Time, but an accident at the 151st mile to the car Clemens was driving put that machine out of business, so the two drivers then alternated the rest of the way in the one car. At times Merz and Clemens were so numbed by the weather that it was necessary to almost carry them from the car to the judges' stand, where a warm stove, sandwiches and coffee awaited them. Sometimes the two men had to be rolled on the floor before they could get control of the muscles of their legs.

This record drive was started at 2:45 p.m. on Thursday afternoon, November 16.

The track at the beginning was in very fair condition. The two National cars were started 30 seconds apart, and ran evenly until the first tire troubles, which occurred within the first 100 miles. The first mile was run in 1 minute 9 and  $\frac{1}{2}$  seconds. From the first mile until the fifty-eighth there was slight variation in the time, the different miles varying from 1 minute 7 $\frac{1}{2}$  seconds to 1 minute 6 $\frac{1}{2}$  seconds. After this point in the race, the car driven by Clemens showed a little better speed and made miles from 1 minute and 5 seconds to 1 minute 5 $\frac{1}{2}$  seconds, while a little later it dropped to 1 minute 4 $\frac{1}{2}$  seconds, and then 1 minute 3 seconds, and finally 1 minute 2 $\frac{1}{2}$  seconds on the eighty-eighth mile.

On the ninety-fourth mile a tire on Clemens' car exploded. At that time he was 2 minutes 19 $\frac{1}{2}$  seconds inside of his former record, made in the 100-mile race. He lost 7 minutes 18 seconds, in having the tires replaced, but succeeded in breaking the 150-mile record by 13 minutes 5 $\frac{1}{2}$  seconds. The second car, driven by Merz, fell slightly behind and on the 151st mile Clemens' machine struck the fence on entering the home stretch, because of the fact that it was growing dark, and the Prest-o-lite lights, which were to light the track, had not all been lit at that time of the mixup.

The withdrawal of Clemens' car left but one machine in the drive, which was the one handled by Merz at the beginning. It was then decided to alternate the drivers, allowing each to drive from 50 to 100 miles before changing. The car which struck the fence broke the 150-mile record by 13 minutes and 5 $\frac{1}{2}$  seconds. Following is a table showing the new and old records:

Miles	National	Deauville
650.....	14:08:51 2-5	14:26:47
700.....	15:10:29 3-5	17:59:59
750.....	16:20:25 2-5	17:27:10
800.....	17:17:26 1-5	18:52:44
850.....	18:23:44 2-5	20:06:46
900.....	19:44:48 1-5	21:21:37
950.....	20:54:50 3-5	22:33:16
1000.....	21:58:00 4-5	25:50:01
1050.....	23:07:42	.....
Hours	Miles	Miles
24.....	1094 3-16	1015 5-8

up by Guy Vaughn on the Empire City track last June for 1,000 miles and for 24 hours. The 1,000-mile time was 21 hours 58 minutes  $\frac{1}{2}$  seconds as against Vaughn's 23 hours 33 minutes 20 seconds and, farther back, Wridgeway's 25 hours 50 minutes 1 second. For the journey twice around the clock the National did 1,094 $\frac{1}{2}$  miles as against the Deauville's 1,015 $\frac{1}{2}$  miles and the Peerless' 943 miles, beating the long grind mark by more than 79 miles. The National first got inside the records at 150 miles, when it was 13 minutes 5 $\frac{1}{2}$  seconds to the good. Then there was a slump and Father Time got away until the 650th mile was reached.

For the 24 hours an average pace of 45 7-12 miles an hour, including stops, was



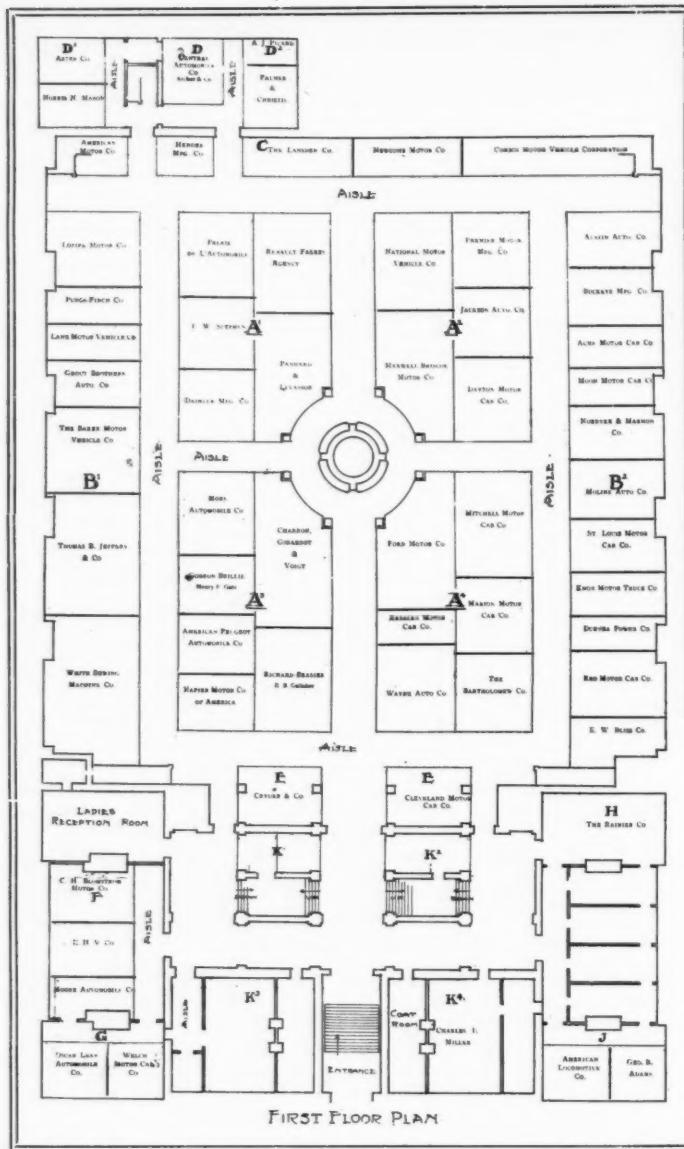
CLEMENS AND MERZ IN THE NATIONAL AFTER RECORD RIDE

## INDEPENDENTS ALLOTTED

**N**EW YORK, Nov. 18.—The show down of the independents has been made. The Automobile Club of America made announcement today of its allotments of spaces for what it aggressively terms its sixth annual show of motor cars and accessories at the new Sixty-ninth Regiment armory, January 13 to 20, 1906. Space has been given to 204 exhibitors—twenty-four in the basement, eighty-nine in the gallery, twenty-three in the gymnasium, and twenty-eight in the basement—and applications are still coming in.

With 204 exhibitors—and possibly a few more will be squeezed in before the show opens—the armory show will be such as to at least share equally with the garden affair in the patronage the automobile world will give eastern motor exhibitions in January.

Of the eighty-one exhibitors in the building there are nearly fifty American automobile makers. In this list all the prominent home concerns are found outside of those allied with the A. L. A. M., and with the amount of space allotted each, a representative exhibition may be looked for. The demand for space was such that the show management was compelled to place a number of prominent concerns in the basement, which has been laid off in such a manner as to make a rather desirable



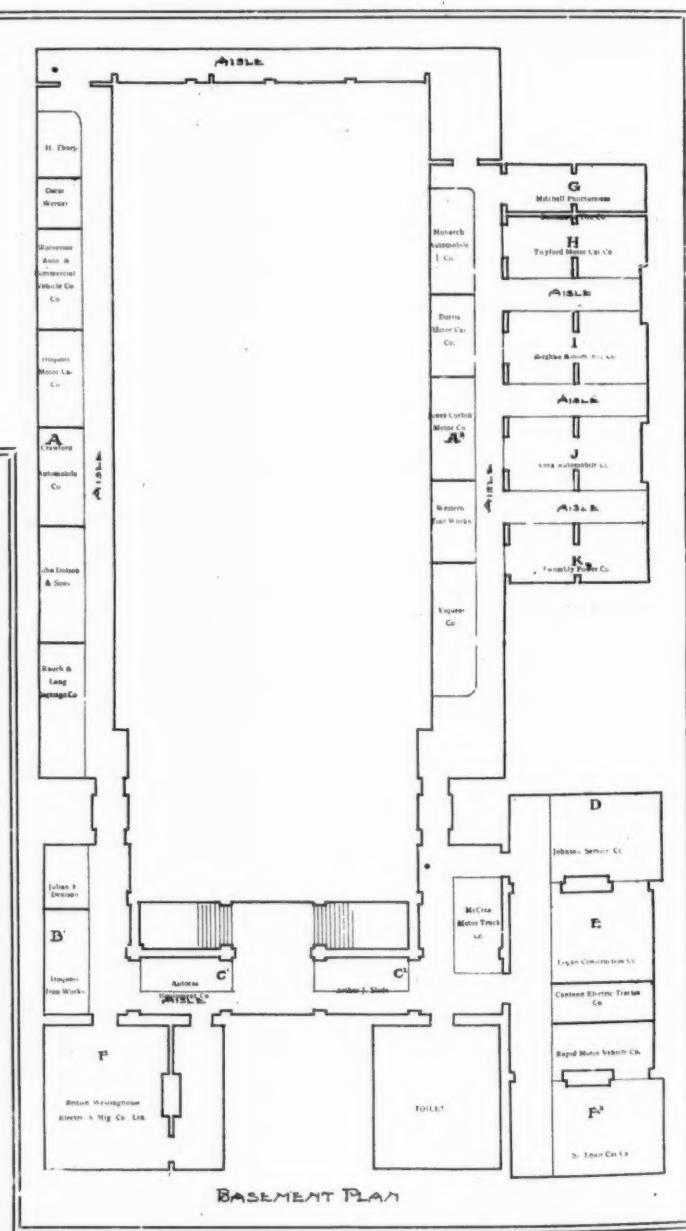
**MAIN FLOOR**

White Sewing Machine Co.  
Thomas B. Jeffery & Co.  
Baker Motor Vehicle Co.  
Grout Bros. Automobile Co.  
Lane Motor Vehicle Co.  
Pungs-Finch Co.  
Lozier Motor Co.  
Palais De L'Automobile.  
English Daimler Co.  
Daimler Mfg. Co.  
Renault Bros. Agency  
Panhard & Levassor  
Mors Automobile Co.  
Gobron-Brille Agency.  
American Peugeot Co.  
Napier Motor Co.  
Charron, Girardot & Voigt  
Richard-Brasier Co.  
National Motor Vehicle Co.  
Maxwell-Briscoe Motor Co.  
Premier Motor Mfg. Co.  
Jackson Automobile Co.  
Dayton Motor Car Co.  
Ford Motor Co.  
Ardsley Motor Car Co.  
Wayne Automobile Co.  
Mitchell Motor Car Co.  
Marion Motor Car Co.  
Bartholomew Co.  
Austin Automobile Co.  
Buckeye Mfg. Co.  
Acme Motor Car Co.  
Moon Motor Car Co.  
Nordyke & Marmon Co.  
Moline Automobile Co.  
St. Louis Motor Car Co.  
Knox Motor Truck Co.  
Reo Motor Car Co.  
Duryea Power Co.  
E. W. Bliss Co.

Corbin Motor Corporation.  
Newcomb Motor Co.  
Lansden Co.  
Hendee Mfg. Co.  
American Motor Co.  
Aster Co.  
Central Automobile Co.  
Blomstrom Motor Co.  
E. H. V. Co.  
Moore Automobile Co.  
Oscar Lear Automobile Co.  
Welch Motor Car Co.  
Charles E. Miller  
American Locomotive Co.  
Rainier Co.  
Cleveland Motor Car Co.

## **BASEMENT**

Wolverine Automobile Co.  
Iroquois Motor Car Co.  
Crawford Automobile Co.  
John Dolson & Son  
Rausch & Lang Carriage Co  
Julian F. Denison  
Iroquois Iron Works  
Westinghouse Co.  
Autocar Equipment Co.  
McCreary Motor Truck Co.  
St. Louis Car Co.  
Rapid Motor Vehicle Co.  
Cantono Electric Tractor Co  
Logan Construction Co.  
Johnson Service Co.  
Viqueot Co.  
Western Tool Works  
Jones-Corbin Motor Co.  
Dorris Motor Car Co.  
Monarch Automobile Co.  
Twombly Power Co.  
York Automobile Co.  
Berkshire Automobile Co.  
Twwford Motor Car Co.

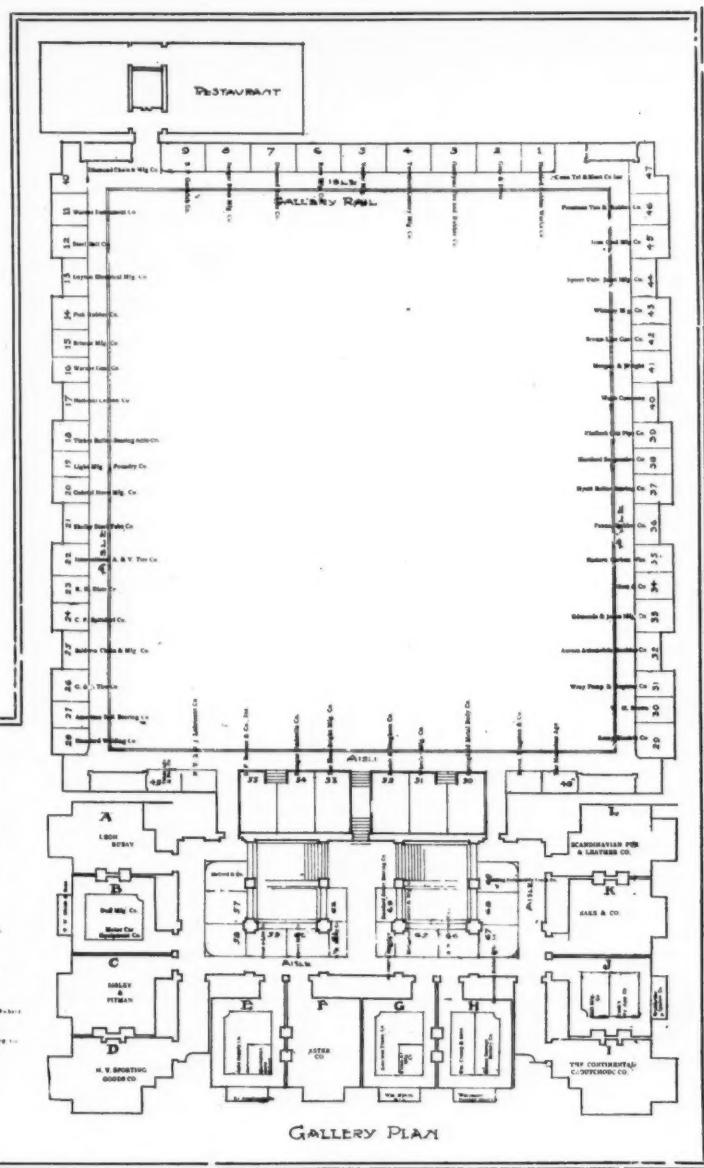
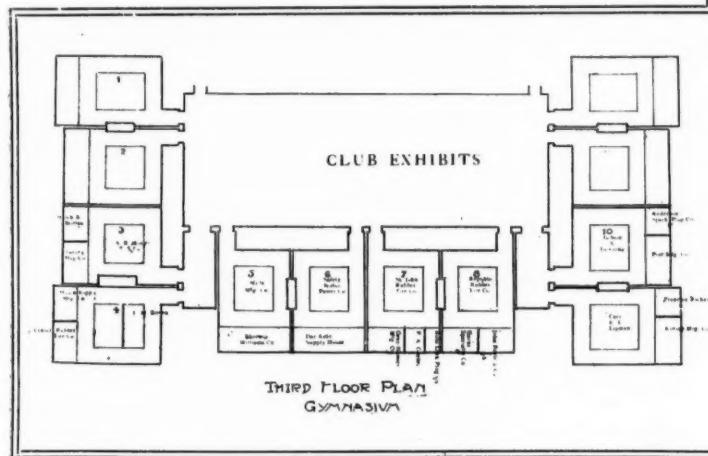


## NEW YORK SHOW SPACE

section. The central portion of the first floor is laid out splendidly and should be the means of accommodating a large crowd of people.

There are eighty-one exhibitors of complete pleasure vehicles—sixty on the main floor and twenty-one in the basement. The display of foreign cars promises to be notable. Fourteen importing concerns will exhibit. The imported cars to be shown include the Delaunay, British Napier, Renault, Panhard, Mors, Gobron-Brille, Peugeot, C. G. V., Richard-Brasier, Aster, Martini and Leon Bollee. Notable absentees are the Mercedes, de Dietrich, Decauville, Rochet-Schneider, Clement-Bayard and Fiat, which belong to the licensed division. The Panhard and Renault will also be represented at the Madison Square garden show.

While the automobile sections will prove of intense interest to prospective purchasers, the agent and the owner will find the gallery of especial interest, inasmuch as this section will contain the exhibits of sundries, which this year will contain any number of new things in tires, ignition, clothing, tops, etc. The maker, too, will be found here examining lamps, horns, plugs, coils, batteries, bearings and other things for which he may find use in putting out his wares.



### GYMNASIUM

Hatch & Brittan  
Survey Map Co.  
A. R. Mosler & Co.  
Mason-Kipp Mfg. Co.  
Consolidated Rubber Tire Co.  
F. M. Brown  
Mills Mfg. Co.  
Sherwin-Willam Co.  
Safety Motor Power Co.  
Dac Automobile Supply House  
St. John Rubber Tire Co.  
Gray-Hawley Mfg. Co.  
F. A. Goebel  
Automobile Lock Club Co.  
Uncas Specialty Co.  
John Boyle & Co.  
Republic Rubber Tire Co.  
Carl E. L. Lipman  
Judson & Downing  
Kinsey Mfg. Co.  
Francois Richard  
Post Mfg. Co.  
Anderson Spark Plug Co.

### GALLERY

Hartford Rubber Works Co.  
Gray & Davis  
Goodyear Tire & Rubber Co.  
Twentieth Century Mfg. Co.  
Veeder Mfg. Co.  
Rose Mfg. Co.  
Diamond Rubber Co.  
Badger Brass Mfg. Co.  
B. F. Goodrich Co.  
Diamond Chain & Mfg. Co.  
Warner Instrument Co.

Steel Ball Co.  
Dayton Electrical Mfg. Co.  
Fisk Rubber Co.  
Briscoe Mfg. Co.  
Warner Gear Co.  
National Carbon Co.  
Tinker Roller Bearing Axle Co.  
Light Mfg. & Foundry Co.  
Gabriel Horn Mfg. Co.  
Shelby Steel Tool Co.  
International A. & V. Tire Co.  
R. E. Dietz & Co.  
C. F. Splitdorf Co.  
Baldwin Chain & Mfg. Co.  
G & J Tire Co.  
American Ball Bearing Co.  
Standard Welding Co.  
Remy Electric Co.  
W. H. Brown  
Wray Pump & Register Co.  
Aurora Automatic Machine Co.  
Edmunds & Jones Mfg. Co.  
Herz & Co.  
Eastern Carbon Works  
Pennsylvania Rubber Co.  
Hyatt Roller Bearing Co.  
Hartford Suspension Co.  
Whitlock Coil Pipe Co.  
Webb Co.  
Morgan & Wright  
Brown-Lipe-Gear Co.  
Whitney Mfg. Co.  
Ironclad Mfg. Co.  
Spicer Universal Joint Mfg. Co.  
Firestone Tire & Rubber Co.  
Connecticut Telephone & Electric Co.  
Byrne, Kingston & Co.  
Springfield Metal Body Co.

Wheeler Mfg. Co.  
Parish & Bingham Co.  
Hess-Bright Mfg. Co.  
Sprague Umbrella Co.  
S. F. Bowser & Co.  
New York & New Jersey Lubricant Co.  
McCord & Co.  
Prest-o-Lite Co.  
Oliver Mfg. Co.  
R. E. Hardy Co.  
Standard Roller Bearing Co.  
Republic Rubber Co.  
McGiehan Odometer & Mfg. Co.  
A. W. Harris Oil Co.  
Continental Rubber Works Co.  
Belding Automobile Transportation Co.  
Leon Rubay  
Duff Mfg. Co.  
Motor Car Equipment Co.  
F. W. Ofeldt & Sons  
Sibley & Pitman  
New York Sporting Goods Co.  
Automobile Supply Co.  
Manhattan Automobile School  
Railway Appliance Co.  
Aster Co.  
Gearless Trans. Co.  
Klean-Al Mfg. Co.  
William Hjorth  
William Cramp & Sons Co.  
Edison Storage Battery Co.  
Worcester Press Steel Co.  
Continental Caoutchouc Co.  
Hill Mfg. Co.  
Cook's Railway Appliance Co.  
Witherbee Igniter Co.  
Saks & Co.  
Scandinavian Fur & Leather Co.

## MORE ROOM FOR CHICAGO SHOW



FIRST REGIMENT ARMORY, TO BE USED AS ANNEX FOR CHICAGO SHOW

Chicago, Nov. 21—So great has been the demand for space at the 1906 Chicago automobile show that Manager Miles has been compelled to secure an additional exhibition hall. The nearest and only available building is the First Regiment armory, which is located at the northwest corner of Michigan avenue and Sixteenth street, and which ranks second to the Coliseum as a hall for exhibiting purposes. Securing additional space was made necessary by the fact that while the Coliseum has 39,000 square feet of exhibition space, the applications cover 64,000 feet, so there was a shortage of 25,000 feet.

The armory building is 300 feet from the Coliseum, the backs of the two buildings being on the opposite side of the same alley. It is the intention of the management to cover the alley in some manner and thoroughly light it. The alley is now provided with an asphalt pavement. The appointments in the armory will be the same as those in the Coliseum.

As a matter of fact, the management is making an effort to turn as much of the public into the armory first as is possible. The passes for automobile agents for both buildings will be issued at the armory only and the railroad tickets will be signed there. It is designed to hold all meetings and conventions in the armory in order to force the attendance into this part of the automobile show.

In the allotment of space the management based the placings according to the number of previous shows at which applicants had exhibited, dividing them into classes. Although Manager Miles stated that an effort was made to provide each applicant with the amount of space desired, even with the addition of the armory it was impossible to do so, and some must be left out. It will be noticed by the accompanying list that in the armory there are many of the most prominent automobile makers in the country, so that

even without the efforts of the management to force the attendance of the public into this portion of the show the armory will receive quite as much attention as will the

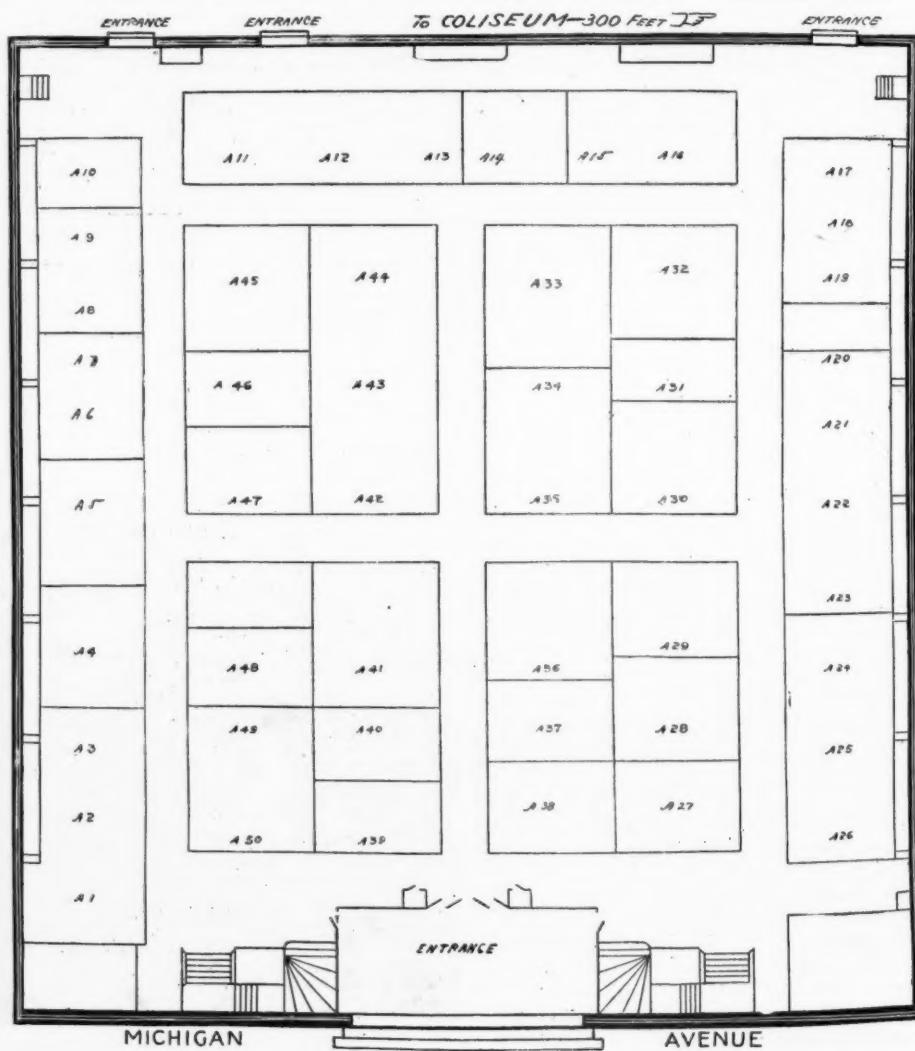
Coliseum proper when the show opens.

The management has made public the list of exhibitors on the main floors of the coliseum and armory, but the work of apportioning space for the galleries has been such that these allotments will not be announced for a week. The exhibitors:

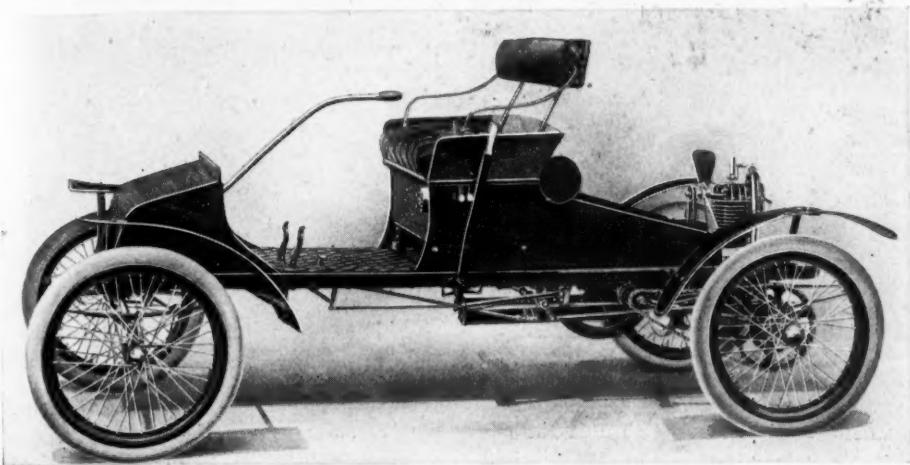
THE COLISEUM  
Packard Motor Car Co.  
Elmore Mfg. Co.  
E. R. Thomas Motor  
Co.  
Olds Motor Works.  
Haynes Automobile Co.  
Locomobile Co.  
National Motor Veh. Co.  
Electric Vehicle Co.  
Pope Motor Car Co.  
Woods Motor Veh. Co.  
Winton Motor Car. Co.  
Pope Mfg. Co.  
Mitchell Motor Car Co.  
Thomas B. Jeffery & Co.  
Peerless Motor Car Co.  
Knox Automobile Co.  
F. B. Stearns Co.  
Studebaker Automobile  
Co.

Stevens Arms Co.  
Autocar Co.  
George N. Pierce Co.  
White Sewing Mach. Co.  
St. Louis Motor Car Co.  
Apperson Automobile Co.  
Royal Motor Car Co.  
H. H. Franklin Mfg. Co.  
Northern Mfg. Co.  
Cadillac Automobile Co.  
Ford Motor Co.  
Premier Motor Mfg. Co.  
Reliance Automobile Co.  
Baker Motor Carriage Co.  
Wayne Automobile Co.  
Duryea Power Co.  
Buick Motor Co.  
Waltham Mfg. Co.  
Corbin Motor Veh. Corp.  
Vehicle Equipment Co.  
Chicago Automobile Co.  
Bartholomew Co.  
Tincher Automobile Co.  
Auburn Automobile Co.

Marion Electric Co.  
Marion Motor Car Co.  
Rapid Motor Vehicle Co.  
Moline Automobile Co.  
Dolson & Sons.  
C. P. Kimball & Co.  
Cleveland Automobile Co.  
Co.  
Lear Automobile Co.  
Synnestvedt Machine Co.  
Wayne Works.  
Rainier Co.  
Western Automobile Co.  
Berkshire Automobile Co.  
Co.  
Logan Construction Co.  
Detroit Auto. Mfg. Co.  
Kansas City Auto. Co.  
J. W. Moon & Co.  
Buckeye Automobile Co.  
Knight & Kilbourne.  
McCrean Truck Co.  
Smith & Mabley.  
Panhard & Levassor.  
H. S. Michaels Co.  
Automobile Impn. Co.



## ORIENT BUCKBOARD REMODELED



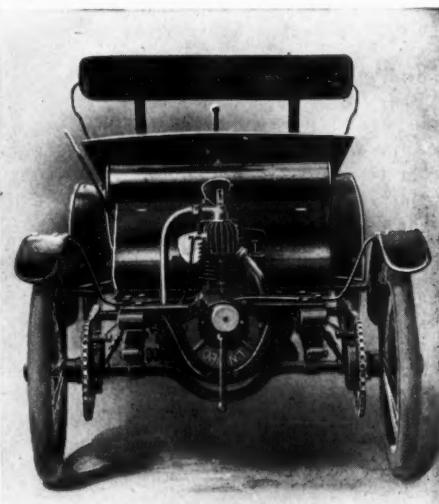
THE ORIENT BUCKBOARD AS REMODELED FOR THE 1906 MARKET

THE Orient buckboard for the coming season, fledged in its new feathers, is decidedly different in its scheme of transmitting power from the motor to the rear wheels, friction disks and double side chains now being used. The little machine is still a stoutly constructed model and the addition of a miniature bonnet used for baggage and enclosed compartment in the rear places it further from the buckboard classification than previously. As previously built the motor is not enclosed, the circular head and valve port being exposed to the atmosphere. A three-bladed fan is now carried in front of the motor, and is driven by a flat belt from a pulley on the crankshaft.

The cylinder bore and stroke are  $3\frac{1}{4}$  and  $4\frac{1}{4}$  inches respectively and a rating of 4 horsepower is given by its makers, the Waltham Mfg. Co., of Waltham, Mass. The cylinder head is a separate casting retained by four vertical bolts passing through the cooling flanges and the heavy flange on the bottom of the cylinder and through the top of the crankcase. The bracket carrying the fan is secured by two of these bolts. The motor hangs in a little sack-like bracket that has a central part, in which the crankcase rests, and four horizontal arms that rest on the top of the trussed main frame and bolted thereto. In fastening the crankcase to the bracketing two bolts unite them at the top of the case near where the cylinder is attached and another pair does similar duty near the base of the case. The case itself is split into two parts, held together by a series of bolts. The bearings for the crankshaft are supported in eages bolted to the case.

The single valve port is carried on the top of the cylinder, the pipe from the carburetor, carried low at the left side, connecting with the top of the housing containing the automatic valve. In the base of the port is the mechanical exhaust valve, with a muffler pipe exiting from the lower angle of the port at the right, coupled with cylindrical muffler carried lengthwise beneath the frame. The spark plug is placed horizontally in the left side of the port between the valves and receives its current from a set of dry cells connected with coil, timer and switch.

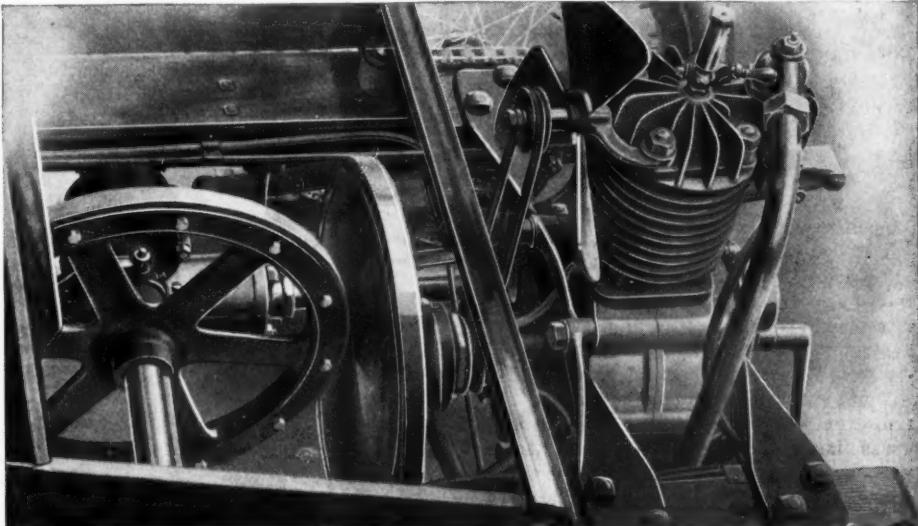
The commutator is of Orient design, made with wipe contact. The carburetor is also of Orient make. A gasoline tank of  $3\frac{1}{2}$



REAR VIEW 1906 BUCKBOARD

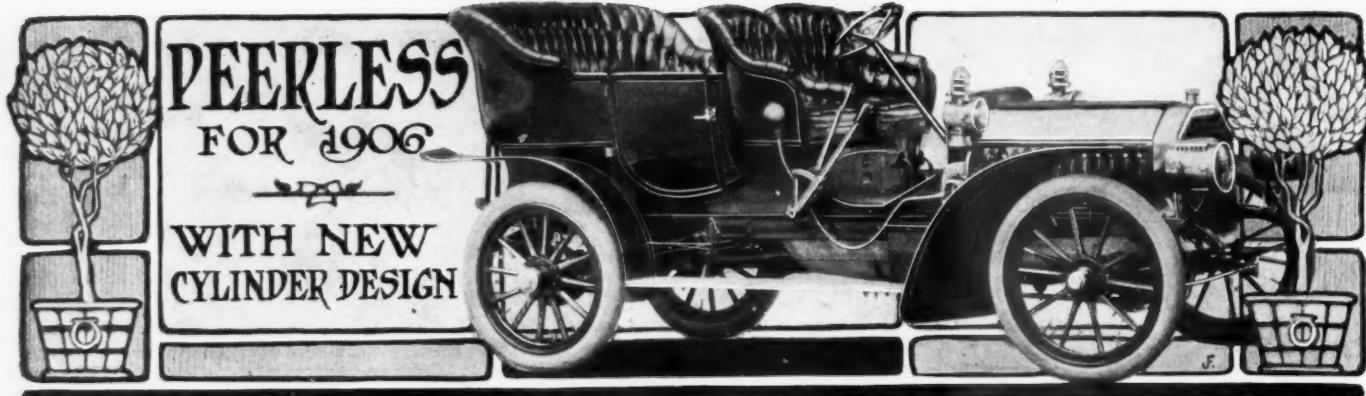
gallons capacity, sufficient for 30 miles, is fitted at the rear of the seat.

The big alterations are met in the transmission which is of the friction type.



MOTOR AND TRANSMISSION ASSEMBLY SCHEME IN 1906 ORIENT BUCKBOARD

On the front end of the crankshaft is a large friction disk with metal face. Forward of this and mounted on a cross shaft is a friction wheel of almost equal diameter, the periphery of the wheel being covered with fibroid. The motor friction disk is made rigid with the crankshaft but the friction wheel is slideable on the cross shaft, so that it can be moved across the face of the disk to give any range of forward speeds or reverse. This movement is given through an outside lever at the driver's left, the lever being connected by a rod with a bell crank, the end of which works a yoke on the friction wheel hub. Forward speeds are gained by contacting the friction wheel with the friction disk at one side of its center. The nearer the wheel is to the outside of the disk the faster the speed and vice versa; for reversing, the wheel is moved to the opposite side of the disk. The method of contacting the periphery of the friction wheel with the face of the disk is by a ball thrust in the rear of the disk on the crankshaft, this being brought into use by the left pedal in the footboard. This pedal has a ratchet, giving it five different degrees of contact, so that the contact can be varied. On the ends of the shaft carrying the friction wheel are sprockets for double chain drive to the sprockets on the rear hubs. On these hubs are the brakes, consisting of a pair of bands, the drums being united with the sprockets. Application is by the right pedal, the connection being through cable to the foot of the brake pedal. The motor is lubricated by a sight feed device, there being a large oiler carried on the right side for supplying the crank case and cylinder. One pint of oil is said to be sufficient for 90 miles of travel. The body and running gear of the buckboard are unique in possessing 26-inch wire wheels shod with  $2\frac{1}{2}$ -inch single tube tires, 80-inch wheel base, an ordinary tread of 42 inches but 56-inch when specified. The trussed frame is carried on a set of four full elliptic springs, each having a length of 19 inches. This year the carrying platform of the body is not so conspicuous because of the little bonnet and the sloping back compartment in rear of the seat. Natural wood finish is retained in the body.



**T**WO 1906 models have been brought out by the Peerless Motor Car Co., of Cleveland, O.—one known as model 14, a 30-horsepower touring car accomodating five passengers, and the other a 45-horsepower machine of the heavy touring car class. Both machines are built with most of the innovations that are the features of next season's machine and in the smaller model, described herein, all the new features are embodied. Conspicuous in the changes noted is the new motor design, with the valves carried in oppositely-placed ports on the sides of the cylinder heads and actuated by push rods acting on the bottoms of the valve stems. Not less noteworthy is the use of a leather-faced expanding clutch, the use of Hess-Bright ball bearings in the road wheels, rear axle, gear box and practically every place except in the motor; the use of a new horizontal tube radiator, new platform spring suspension and minor control features. Among retained features in the machine are the four forward speed gear box with changes made on the selective system, the sub frame for carrying the motor and gear box, arched rear axle and dished rear wheels.

The main frame is made from cold rolled steel with the side pieces parallel throughout and braced by four cross pieces, each reinforced by gusset plates. The cross piece carrying the rear end of the sub frame has integral gusset plates, and similar plates where the sub pieces unite with it. Both motor and gear box have integral arms resting directly on the sub frame pieces. A change in the spring suspension is noted by using a platform combination in the rear, the cross part of the platform being clipped to the center of the rear cross piece, the front of the side parts being shackled to the frame in standard form. Semi-elliptic springs are used in front, with the leaves polished. The front axle is a drop forging of 1 section, the wheel base is 107 inches and 34 by 4-inch tires are fitted.

In the placing of both the regular and emergency brakes on the rear hubs and operating the first by pedal and the latter by side lever, this year's construction is maintained, but a difference occurs in not having the regular brakes inter-

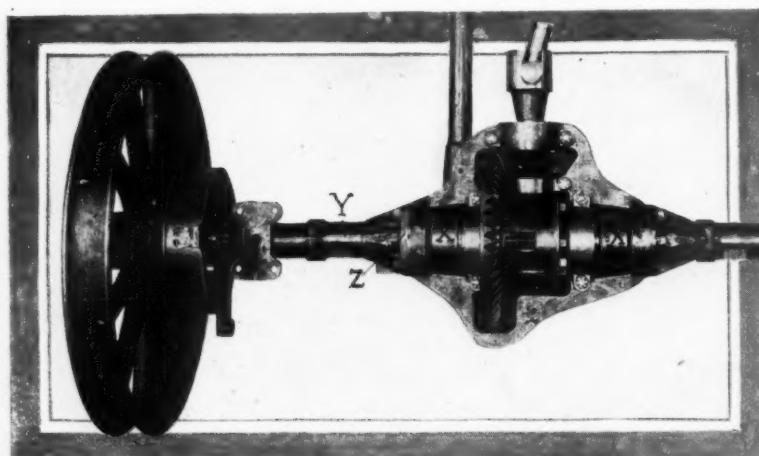
connected with the clutch. This makes it easy to stop the car when ascending a hill. The regular brake is used to hold the car until the clutch has taken control and started the car up the hill. As previously, however, the emergency brakes are interconnected with the clutch, application of the former throwing the latter out. The regular brake has a band working without the cast-steel brake drum, the inside surface of the drum forming a wearing surface for the expansion shoe forming the emergency brake. In the illustration the drum is not shown. The band A of the regular brake is fiber lined, and to increase its flexibility has been split at N, where the two parts are pivoted. In holding the band free from the drum when not in use the coil spring H on the top of the band surrounds a short stem attached to the band. On the support K is a washer acting as a spring seat to retain the spring tension. The brake is applied through the bell crank L, connected to one end of the band A by pivoting and to the other end by a short lever. The emergency bronze shoe B is made in one piece instead of two, as formerly, and is carried on the bolt C, the bolt working in a slot, so that when the brake is not applied it is drawn up free from the drum by the coil spring D and at the same time the longer coil spring E holds the upper ends of the shoe free of the drum. For expanding the shoe B a diamond shaped cam F is placed between the ends of the shoe, which are enlarged for the purpose, the cam being rigid with the lever G connecting with an equalizer and the brake lever. The brake drum has a 10-inch diameter and is 2½ inches wide.

Many differences are found in the 1906

motor compared with the one in use the present season, the valves being placed in opposite ports on the right and left sides and operated by vertical pushrods from camshafts within the crankcase instead of overhead valve levers of the walking beam type. The four cylinders are cast in pairs, with cylinders, jackets, heads and valve ports forming integral castings. Aluminum is used throughout in the crankcase, which is a three-part casting, the top A with integral lugs for supporting the motor, the center B between which and the top are carried the crankshaft bearings and the bottom plate C, forming an inspection plate. The usual side inspection plates on the crankcase are not used. To facilitate the draining of oil, the bottom of the case is made with oil grooves running to oil taps. The housing D for the driving gears is at the front end, integral with the case proper, so that all gears work in an oil and dust-tight case, a plate forming the front. Between the crankshaft gear and the two camshaft gears is interposed the idler P, so that the wear on the crank pinion is not great and gear cutting danger is reduced materially, the idler causing the wear to be distributed on the shaft gear.

The cylinders have a bore and stroke of 4½ and 5 inches, respectively, and with a crankshaft speed of 900 revolutions a minute 30 horsepower is generated. Each cylinder is bored, reamed and then lapped and polished. Each piston carries four compression rings above the wristpin, the ring surfaces as well as those of the pistons being machined to give the same weight in each cylinder. Each ring is pinned against rotation and between the rings and throughout the piston length are several oil grooves for distributing lubricant. The wristpin is a hollow rod pinned to one of the piston journals and lubricated by a pair of oil holes with reservoirs on the top of the connecting rod, a shouldered bushing is used to take up side thrust.

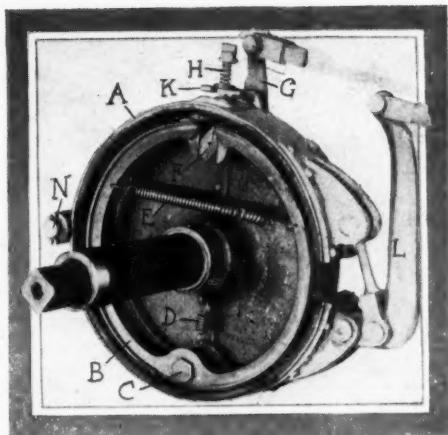
The crankshaft is a drop forging running on two end bearings and one between the cylinder pairs, the front bearing 3¼ by 1 11-16 inches, the center 3 by 1 11-16 inches and the rear 4 by 1¾ inches. Bushings made of white metal are used and oiling is from the splash, which fills large oil



ARCHED REAR AXLE WITH UNIVERSAL JOINTS

cups over each bearing from which the oil is distributed by grooves in each bushing. On the rear end of the shaft is an integral flange, to which the flywheel is bolted, the latter carrying the clutch.

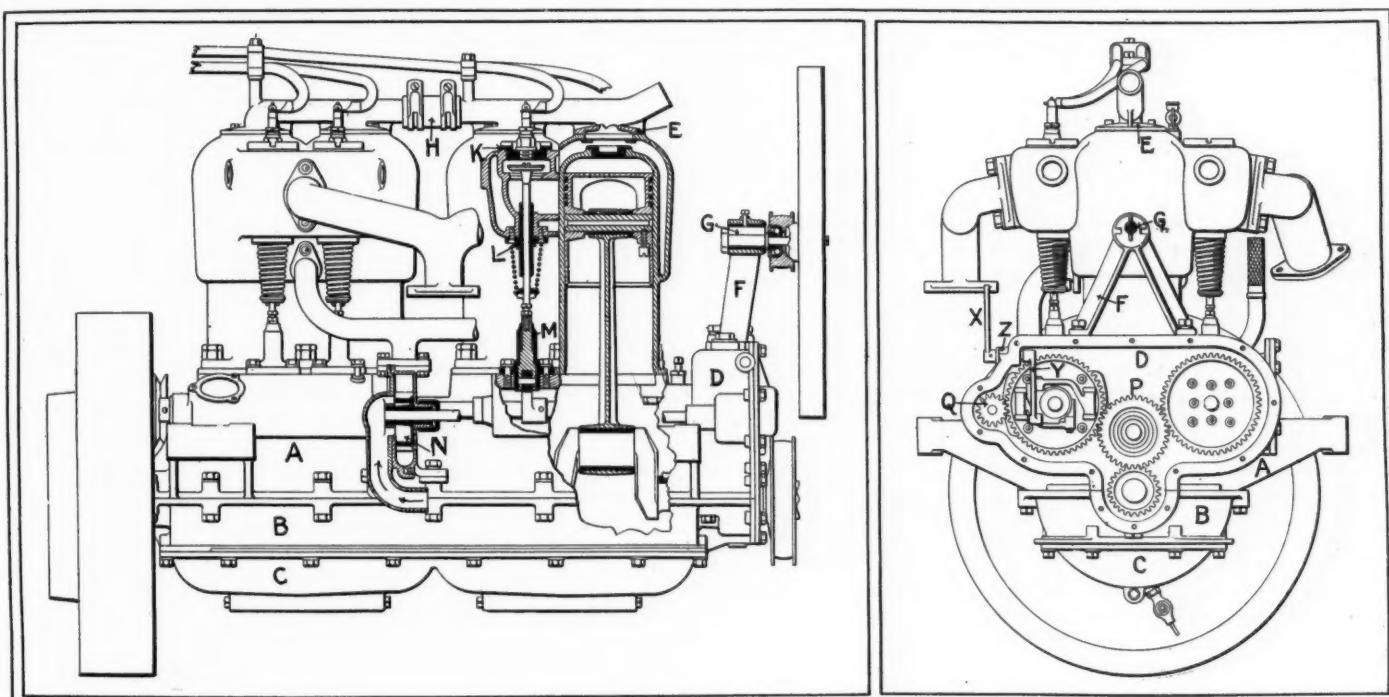
In the valve disposition the intakes are placed on the right side and the exhausts opposite, each located in the upper part of the port and removable by unscrewing a cap K in the port head. Both intakes and exhausts have a diameter of 2 inches and a 5-16-inch lift, being interchangeable throughout and made with the heads and stems integral. Each stem works in a long guide L, which has a tight fit with the bottom of the port and is retained by means of a shoulder and pair of screws. The top of the valve spring rests against the bottom of the sleeve shoulder and the sleeve projecting downwards practically the entire length of the spring, supports the valve stem throughout its length. Push rod construction is standard, the rollers being held on the



EXPANDING FRICTION CLUTCH

The governor is of the standard centrifugal type and connects with the throttle in the intake pipe through the arm X, which has a long bearing in the

with a worm shaft within the steering column, which raises or lowers a sleeve connected at its lower end with the throttle, but the spark lever is on a short arm with an offset, in the center of the column, with a vertical rod in the column attached to the offset, so that a movement of the lever raises or lowers the center rod, which has bell crank connections with the commutator. Ignition is by jump spark, with current taken from storage battery carried on the running board to a quadruple coil on the dash, and gear driven commutator located on the right side of the motor just back of the rear cylinder and driven by bevel gears from the inlet camshaft. The commutator is set at an angle of 60 degrees, so that all of the oil within the case will not work out through the bearings. Instead of a contact brush in the commutator a roller contact is used, the roller running in oil in order to eliminate wear. Spark



INLET SIDE AND FRONT END VIEWS OF THE 1906 PEERLESS FOUR-CYLINDER MOTOR

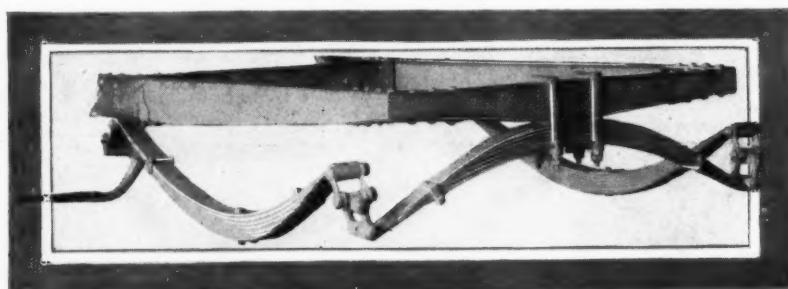
cams through coil springs M within the rod housings, the coil resting at its upper end on a collar of the housing and at its lower end on a collar on the push rod. The camshaft is 13-16 inch in diameter and runs in white metal bearings.

Mixture to the motor is supplied from a float feed carburetor of the auxiliary air valve style, the latter under spring tension. Surrounding the mixing chamber is a water jacket supplied with water from the cooling system. The carburetor is carried close to the cylinders at the right, so that a short Y piping serves to connect each pair of cylinders and the throttle is under control from the steering wheel and also from a governor carried on the inlet cam gear.

crankcase at Z and connects with the governor weights through the arm Y. The spark control on the steering wheel is a thumb lever on the throttle arm or lever, working in a semi-circular quadrant, the object of carrying the spark lever on the throttle arm being that the two are always together, one hand sufficing to care for both. The throttle lever is connected

plugs are placed in the valve caps.

Water circulation is maintained by a gear-driven centrifugal pump N on the right side of the motor, the gear being housed in the same compartment with the cam gears. The water is taken from the base of the radiator and delivered to the lower part of the jackets, the entrance being between the inlet valves at the right side. Instead of leaving the top of the jackets through small openings, the top of the jackets are made open and large plates E cover the openings and form the union with the pipes to the radiator. Between the pairs of cylinders is a hose connection H, giving a flexible union, so that the cylinder vibration has little effect on loosening

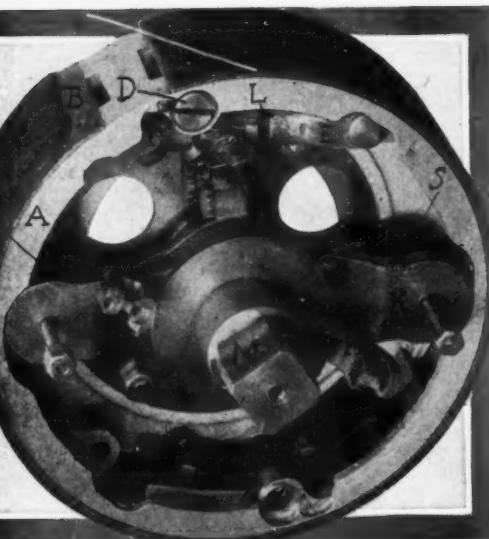


PLATFORM SPRING SUSPENSION AT REAR

the unions in the water system. The new radiator is built on the flat tube principle, the entire frame work carrying the tubes and forming the tanks made in a single casting. The tubing consists of a set of three tubes one behind the other and the set covered by a single flange perforated with small holes and having ragged edges. The fourteen sets of cross tubes thus form a continuous path for the water. The bottom cross tube is connected at one end to a collector or tank in the base of the radiator casting, to which is coupled the piping to the pump, and in this collector is a drain cock for emptying the radiator. In rear of the radiator is a rotary fan belt-driven from the crankshaft. The fan is carried on a bracket F resting on the motor casting, and has an eccentric bushing G carrying the fan shaft, by means of which the adjustment of the fan belt can be changed at will. The shaft runs on roller bearings with oil tight cases.

Motor lubrication is cared for by a sight-feed lubricator on the dash, oil being pumped through the leads. One lead passes to each cylinder and others to each of the crankcase compartments, so that oil after passing around the pistons and lubricating the wristpins drops into the base, supplying the splash, from which the crankshaft bearings are supplied. Steering is by an irreversible worm and segment gear, the column with the worm being carried on races of ball bearings, and in the steering knuckles are other ball bearings for carrying the weight of the front part of the car.

The cone clutch of the present season has been dropped and in its place is one of the expanding type, the friction part of which is a leather lined steel band expanded by a pair of coil springs. The general construction of the clutch can be followed from the illustration, all but two of the expanding parts being shown. The expanding band is 3 inches wide

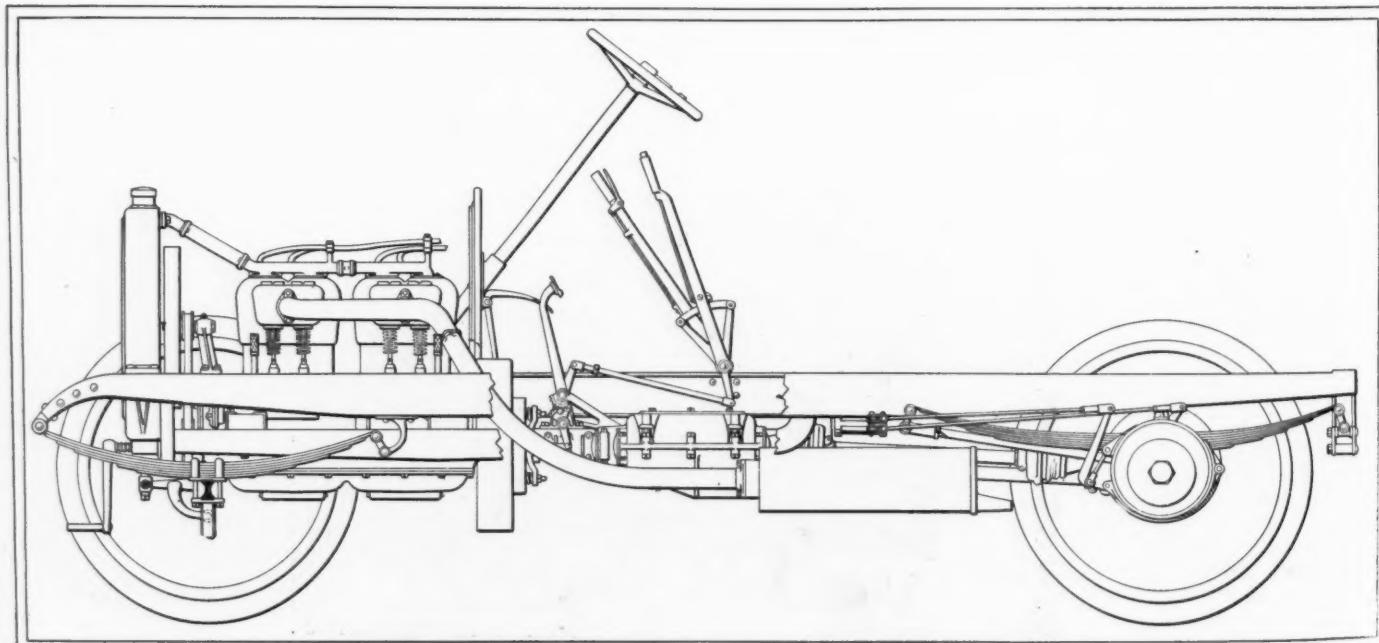


PEERLESS EXPANDING CLUTCH

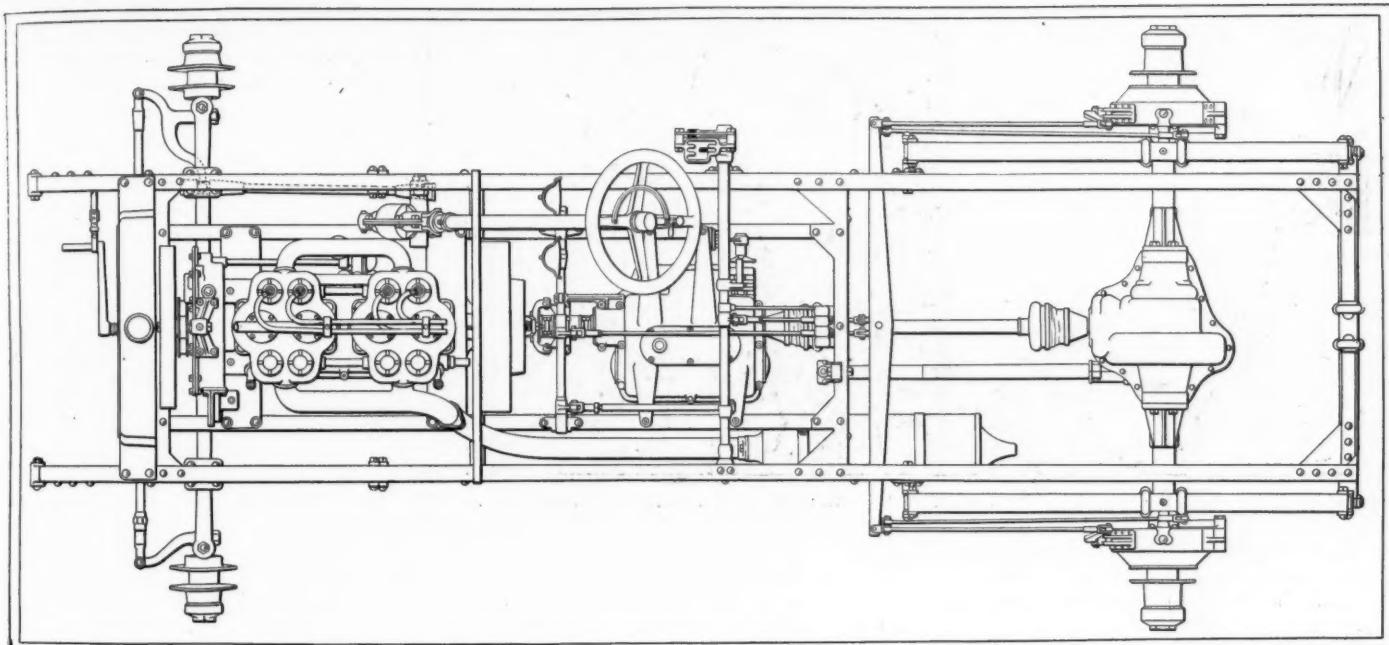
and the clutch diameter is 10 inches. The clutch shaft M has its bearing on the continuation of the crankshaft and the end connecting with the shaft to the gear box is squared, with oval surfaces, so that the two-part steel clamp fitting over it gives the same elasticity as a universal joint. The clutch carrier A is an aluminum casting surrounded by the broad steel band B with its leather facing C. At one end the band B is anchored to the carrier by the stud D, but at the other end is attached to the hollow lug F, which has opposite to it a similar lug E secured to the inside of the band B. In expanding the band it is necessary to force the lugs E and F apart, this action expanding B within the flywheel. In working this expansion there is a double oppositely-threaded stud L, one of the threads of which enters the threaded lug E and the opposite one the threaded lug F, both of which are made with internal threads to receive the worm L. The coil spring S and another at the opposite side of the clutch

force outwardly the double arms K, which also carry the collar for attaching the arms H, which are connected with the clutch pedal for disengagement. As the springs S force the arms H outward a short arm, with ball and socket connections at one end with H and at the other end with an arm depending from the stud L, partly revolves the stud. It will be remembered that L has the opposite double threads and this part of a revolution is sufficient to separate the lugs E and F to give positive drive between the band B and the flywheel. The stud L is notched on its top surface where it meshes with a screw, used for varying the adjustment should the clutch slip. In disengaging, the clutch pedal forces the arms H into the flywheel against the tension of the springs; the arm is also forced in, and another arm, being carried in the same direction, accomplishes a part revolution of the stud L, thereby drawing lugs E and F closer together and withdrawing band B from contact with the flywheel. The ends of the arm fitted with ball and socket joints are adjustable by means of small screws. Within the hollow part of the clutch shaft M are small end thrust ball bearings. The entire mechanism is protected by covering from dust and wind.

The success given by the present type of gear box in which changes of speed are made on the selective principle without passing through gears has led to the maintaining of the gear set practically as it was, with the exception of minor changes. The use of Hess-Bright bearings in all parts of the case in place of plain bearings as used this season is in keeping with 1906 tendencies and the use of a double set in the large bearing for the front end of the main shaft is a guarantee of strength. The four forward speeds and one reverse are gained by one lever working in a three slot quadrant, the two outer slots having forward and back positions



EXHAUST SIDE OF PEERLESS NO. 14 CHASSIS, SHOWING OPERATING DEVICES AND SPRING SUSPENSION



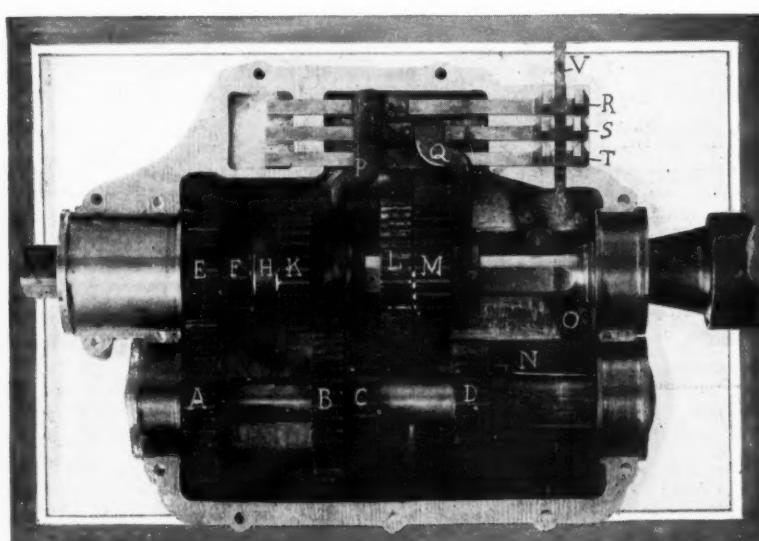
PLAN VIEW OF PEERLESS NO. 14 CHASSIS, SHOWING NEW MOTOR AND MOTOR GEAR CASE SUPPORT

and giving the forward speeds and the inner one having a forward position only for the reverse. The interlocking system has been retained. The method of carrying the gear box by the top half is an old feature, there being four integral lugs for resting on the sub frame. By carrying the bearings between the case parts and having the lower part removable by simply dropping it, the maker claims it is easier to replace gears. A feature of the aluminum case is the scraping of the inner surface, the object being to remove particles of sand from the casting cores.

In obtaining different speeds it must be remembered that three shifting units are used—the first consisting of the two gears H and K, which are made integral; the second of gears L and M, bolted together and the third the reverse idler N, in the base of the case, which is in mesh only when in use. For direct drive the unit H-K is moved forward through the arm P, so that H with its internal teeth slides over gear F, which is made integral with gear E and both are carried on the clutch shaft W, whereas the unit H-K is on the squared main shaft. In this way the clutch and main shafts are locked together and the drive is direct along to the rear axle. For third speed gears K and B are meshed, the drive then being from the clutch shaft through gears E and A to the counter shaft, thence from the latter to the main shaft by gears B and K. For second and slow speeds the unit L-M is used, gear L meshing with C for the former and M meshing with D for the latter, the arm Q serving to slide the unit L-M. In reversing, the gear N, made double the width of others, is moved forward so

it jointly meshes with gear D on the countershaft, and M on the main shaft, the latter gears being as shown in the illustration, the idler having sufficient width of face to mesh with both. The method of shifting the three units is through the three shifting rods R, S and T secured respectively to the arms P, Q and O, connecting with the sliding units. If direct drive is wanted an arm depending from the sleeve carrying the change speed lever slides into the large notch on the outer end of the shifting rod R and at the same time the interlocking arm V, which works through a series of slots in the under surface of the three shifting rods R, S and T, has one slot in its upper surface and when this slot is brought beneath the rod R the rod can be moved to the front, while the rods S and T are locked against similar movements by the part of the interlocker V, which has no slots in its upper surface. With the shifter R free it is moved to the front and H is meshed with E. When the second

or slow speed is wanted the shifting rod S is needed and when the lever at the driver's right is moved sidewise to bring it into the quadrant for these speeds, the interlocker V is simultaneously moved, so that the slot in it is directly beneath the rod S and it is free to move either to the front or rear. The button on the shifting lever at the driver's seat is only used on the reverse, the lever when in the center of the quadrant being free to move into either slot, but it cannot enter the reverse until the button is pressed. Drive to the live rear axle is through a propeller shaft, the shaft being relieved of all strains from the axle by a torsion rod. The Peerless rear axle is arched so the road wheels are dished 2 degrees. The arching is made possible by the use of universal joints in the drive shafts at either side of the differential, the joints being of the simple jaw variety and contained within the outer part of the differential housing. The joints are shown at X in the view of the axle, and at Z in the same illustration is shown the manner of bolting the differential housing to flanges on the axle housing Y instead of brazing or pinning it in place. Another rear axle change is the brazing of the plates on which the springs rest in place and the use of radius rods from the axle housing to the side pieces of the main-frame. A spur gear differential is maintained, but Hess-Bright bearings have been installed throughout the axle, being used for end thrust at one side of the differential and also against the propeller shaft. Adjustments are fitted for both the large bevel on the differential and the small bevel pinion on the propeller shaft.



PEERLESS FOUR-FORWARD SPEED GEAR SET



TRANSPORTING FOX HOUNDS BY MOTOR POWER TO HUNTING GROUNDS NEAR NASHVILLE, TENN.

**Right Way**—The bishop of Liverpool has been presented with an automobile by his diocese in England and to make the present a good one the sum of \$700 a year for 6 years has also been settled on him for the maintenance of the car.

**Ex-Mayor Tours**—Ex-Mayor James D. Phelan, of San Francisco, has returned from a long visit to Europe, on which Miss Phelan accompanied him. Mr. Phelan made an extensive tour of France, Germany and Spain in his new Mercedes car. They visited many out-of-the-way, primitive places.

**Chadeayne On Road Again**—W. C. Chadeayne, the motor cyclist who recently completed a record-breaking run from New York to San Francisco, left the latter city Thursday, November 16, for Los Angeles, from where he will travel on into Mexico. Chadeayne will not attempt any records on the run down the coast, owing to the poor condition of the roads.

**Good Work**—The Grand Forks Automobile Club of Grand Forks, N. D., is reported to be doing great work in the cause of motoring. Its work in the last legislature, when it defeated a bad law and was instrumental in the passage of a good measure, is its chief claim to fame. It is claimed to be the strongest motoring organization west of St. Paul and Minneapolis and east of San Francisco.

**Prize to a Steamer**—F. F. N. Baldwin, in a steamer runabout, captured the time prize, the Knight cup, in the annual hill-climbing contest of the Rhode Island Automobile Club up Stump hill, near Pawtucket, R. I., last Saturday, going up the incline in 55% seconds, with B. F. Blackinton, last year's winner, 10 seconds behind. Arthur S. Lee, in a 30-horsepower Pope-Toledo, won the class for big cars.

**Kick From Farmers**—A halt has been called in the building of macadam roads around Binghamton, N. Y., because the farmers in the territory object to keeping good roads in condition at their own expense. The supervisors are reported to believe that the cost of maintenance of a road should be borne in the same proportion on which it is constructed; that is, the state should pay 50 per cent, the county 35 per cent and the town within which the road is located 15 per cent. The farmers believe the motorists should help

pay and it is reported that a movement has been started whereby automobiles will be taxed for the maintenance of roads. It is expected this tax would amount to about \$400,000 a year, which could be used keeping macadam roads in condition.

**Still Homeless**—The question of new permanent quarters still is in abeyance before the Milwaukee Automobile Club. The committee appointed by President Sherburn Becker has several sites under consideration, but as yet no definite action has been taken.

**Owners to Organize**—Rumor has it that a number of owners of automobiles at Toledo, O., will form a company to erect a new automobile garage in the heart of the business district of the city. It is said that the company will be capitalized at \$50,000. Toledo now has six garages, and if this project materializes the city will have double the garage space it had a year ago.

**Road Money Goes Begging**—Mrs. Howard Gould, en route from Virginia to New York city in an automobile, stopped long enough in Philadelphia to give the newspaper men there her impressions of the roads, especially those between Baltimore and the Quaker city. Her opinion corresponds with that of Wizard Edison, who, a few weeks ago, handed out several uncomplimentary jabs at the road system of the keystone state. The fact that at the last session of the Pennsylvania legislature there was passed a good roads bill, calling for the expenditure of upwards of \$6,000,000 in 6 years, would naturally lead the outside world to believe that a great road improvement boom was on in the state. Not so. The terms under which the state offers its aid to the counties and townships are, in many cases, considered to be unfavorable to the latter, the result being that there is no rush to take up the state's offer. It is even intimated that this state of affairs was foreseen by unscrupulous advocates of the bill, who, with a big balance in the favored treasury banks, saw good opportunities of borrowing money at low rates of interest to advance private schemes. Had the terms offered to townships and counties to embark on road improvement been as favorable, for instance, as they are in New Jersey, the full amount appropriated would have

been quickly applied for, and there would have been no uncalled-for balances in the treasury for the use of favored political borrowers. The real good roads advocates of the keystone state are hoping that the recent political revolution will result in the passage of a law that will prove satisfactory to all hands.

**Motor Wagon Freight Line**—W. J. Morgan, promoter of the southern circuit races, who has just returned from Florida, says three express companies have been formed, and will run motor wagon freight lines over the new road between Miami and Palm Beach. This road is 60 miles long and will be completed by January 1.

**Quizzed by Uncle Sam**—The good faith of the advertisement printed in Minneapolis papers by Arthur H. and Dwight E. Jackson is questioned by the United States postal authorities, who brought them before United States Commissioner Abbott to explain an advertisement which offered for sale a 1904 White steamer for \$600, the car to be shipped for inspection on the payment of \$300. It is said in the complaint that a machine of inferior make and not worth \$300 was forwarded. Using the mails with fraudulent intent is charged. The men were held to the next federal grand jury.

**Roosevelt Relents**—President Roosevelt has decided that Walter Eldridge, chauffeur of the bureau of standards of the department of commerce and labor, had just provocation for his profanity when he got in front of the president's carriage with his automobile, causing his dismissal. He has been reinstated. Eldridge became confused when ordered to get out of the way by the secret service men and turned in front of the president's carriage. Irritated by the detectives' calling down, he dropped a choice swear word which caused the president to abrogate about half the merit law and fire him.

**Good Roads Missionary**—Asa Goddard, chairman of the routes and maps committee of the A. A. A., will start this week from New York on an extended tour in an automobile, in the interest of the national organization. He will first work toward Boston, by the shore route, via New London and Providence. He will carefully remeasure the distances, so as to bring the route cards up to date. He will also make appointments of official hotels and garages. Nor will his work end here; for he will do recruiting work also among clubs and individuals. In fact, he will act as a peripatetic A. A. A. missionary a-motor.

**Stirs Up the Farmers**—Farmers along the road from Chicago to Cincinnati are reported to be up in arms and searching for Frederick Innes, a Chicago bandmaster who recently drove from the windy city to Cincinnati in a motor car to win a bet from a friend of his who wagered he could not cover the distance in a certain time. On the way Innes worked up a race with another friend, L. G. Conn, of Elkhart, Ind., the loser to pay for a trip to Europe. The bandmaster lost his first bet by 52 minutes, but the second he won. So fast did he skate across country that he left a trail of angry country people behind him, who vow they will make him pay for his

speeding. It is this kind of work that stirs up the enmity of the people and starts the motorphobists talking.

**Helped Jolly a King**—Dr. W. A. Spring, an American dentist who resides in Dresden, took part in the recent demonstration in honor of the king of Saxony, his Winton car, gayly decorated, occupying a prominent place in the parade, Dr. Spring himself being at the wheel.

**Must Slow at Corners**—Commissioners of the District of Columbia are considering the advisability of amending the police regulations by requiring automobilists in turning street corners on streets outside the fire limits to slow down to 4 miles an hour. Many complaints have recently been made that automobilists in the outlying districts are very reckless in turning corners, and it is likely this practice will be curbed by framing a regulation to cover it.

**Horsemen Holler**—The big Seeing Philadelphia rubber wagons, which, like all automobiles in the Quaker city, have the run of Fairmount park, are getting themselves disliked by the horsemen, who claim that the Leviathans frighten their animals. At a recent meeting of the park commissioners an appeal was received asking that the huge machines be either prohibited the use of the park or compelled to restrict their operations to certain roads well away from the east and west river drives and other main arteries of travel through the people's popular pleasure ground.

**Enough For Miller**—Evidently Major C. J. S. Miller, whose big Fiat car was driven so successfully by Chevrolet last summer, has had enough of racing, for it is now announced he had changed it into a touring machine, a light tonneau with a seating capacity for five having been put on. S. B. Stevens is another who has converted his racing car into a touring rig. Offsetting this, racing is said to have gained a recruit in George Gould, who has ordered a 40-horsepower French car with a light racing body, which the enthusiasts are counting on seeing in the Ormond competition. Ostensibly the Gould car is intended for use on the grounds of his country home on Long Island.

**Aid to Fox Hunting**—In Nashville, Tenn., an automobile owned by Professor J. F. Draughon is put to a novel use. To the automobile is attached a trailer designed by Professor Draughon. The trailer is attached to the automobile by a coupling similar to that used on railway cars. The trailer holds twenty dogs and has an upper deck. Tents are carried on this part of the trailer, while underneath is a compartment which is used to carry cooking utensils, etc., in the event a long hunt is planned and executed. Some of the best hunting grounds are about 15 or 20 miles from the city and it was for this reason that the professor hit upon the plan of attaching a trailer to his car, as by so doing he is enabled to leave Nashville late in the afternoon and yet reach the hunting ground on time without worry or loss of time from his business and turn his dogs loose fresh and ready for the sport. When he arranges for a trip at some distance he sends his horses to the hunting place or some convenient rendezvous in the after-

noon and when he and his friends arrive in the afternoon the horses are saddled and the dogs let out of the trailer fresh and the fox is soon going. After the chase by special signal the dogs come in, get into the trailer and the hunting party is soon on the return trip to the city.

**Chip on Oldfield's Shoulder**—Barney Oldfield, who was in Philadelphia last week with his new Peerless racer, en route to New York after a trial of the flyer on the Ventnor-Longport beach course, below Atlantic City, announced he has the car that can win the Florida 2-miles-a-minute race. George T. Thompson, of the Eastern Automobile Co., of Philadelphia, which handles the Peerless, stated that Barney was anxious for a real try out of the car and was especially anxious to get a chance at the Thomas Flyer, on road or beach, and at any distance, for any amount from \$500 to \$1,000.

**Contest for Cups**—The first of the month the competition for the mileage and touring cups offered by the Cleveland Automobile Club will be decided. The mileage cup goes to the club member who owns the automobile which has made the greatest mileage over the streets and public highways between May 1 and December 1. The other trophy is for the member who has toured the most extensively in the same time, no trip of less than 100 miles being considered. It must also include at least 1 night's stop in a different locality from that in which the original start was made.

**Another First One**—The oldest inhabitant is claiming that to Rev. J. Carhart, who resided in Racine, Wis., in 1870, belongs the credit for making the first automobile in this country, it being asserted that 35 years ago the minister turned out "a four-wheeled concern resembling an old-fashioned buckboard, with a vertical steam engine attached to the rear axle. Out of necessity it was noisy, and is said to have been erratic in proportion, showering sparks in profusion. Many runaways were said to have been caused by it in the public roadways, and when one day a valuable race horse, a descendant of which

was Jay-Eye-See, the famous trotter, was killed in a mad dash from terror at Carhart's automobile, it was banished by law," says the chronicler down in Texas, who is anxious that the minister be given proper credit for his inventive genius in the automobile line.

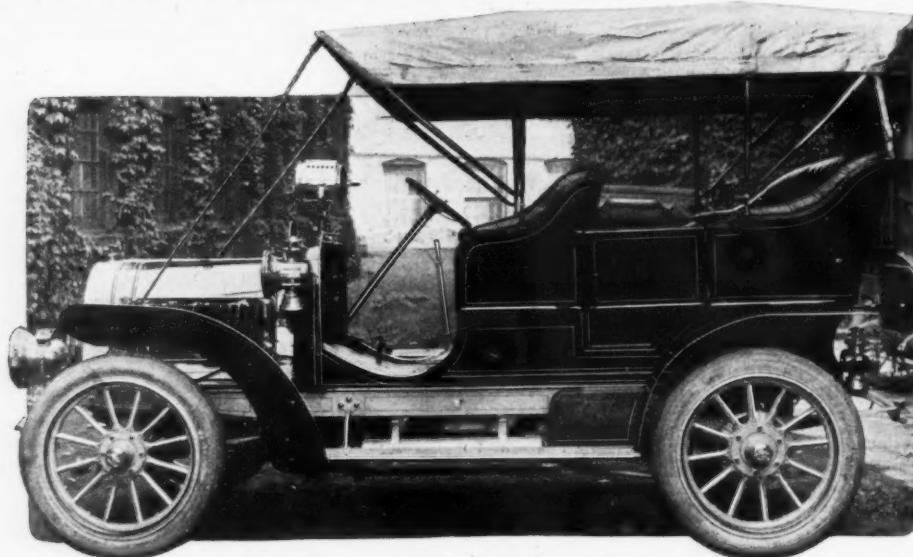
**Lighthouse Story Revamped**—The usual quota of automobile hunting experiences is making its appearance with the opening of the gunning season. New Yorkers who were returning to their quarters near Rising Sun, Md., after rather poor success with the gun, so the latest story goes, were startled to have a bevy of wild ducks dash against their machine in the darkness. It appears that the brilliant searchlight on the front of the car dazzled the birds, and they flew against the glass shield in sufficient numbers and with such force as to shatter it into fragments. When the party jumped out and had gathered in the stunned birds their day's bag was of quite respectable proportions.

**Chain of Garages**—Dave Hennen Morris, the incoming as well as retiring president of the Automobile Club of America, had some interesting recommendations to make in his report, read at the annual meeting. One of them was decidedly radical. Not satisfied with the establishment of a club garage, with accommodation for 350 cars, he made the suggestion that the club establish other garages on the east side, down town, in Long Island and in West Chester and New Jersey. There are some 1,000 cars owned by club members. Many, no doubt, would continue to be stored in the public garages devoted to particular makes, that their owners might have the advantage of duplicate parts at hand and repairs by workmen directly familiar with the machines. With the enormous number of cars now in this city and thousands more likely to seek storage facilities next season, the A. C. A.'s new scheme is not likely to create even a flurry of opposition in the trade, as the club garages could, of course, be open only to the cars of the members. Much doubt, though, is expressed of the practicability of this utopian scheme of President Morris.



AMERICAN AUTOMOBILE IN PARADE GIVEN IN HONOR OF KING OF SAXONY

## A FOUR-CYLINDER POPE-HARTFORD



NEW FOUR-CYLINDER POPE-HARTFORD CAR

**P**OPE-HARTFORD model F for the coming season is one more of the full grown productions in the motor car line that this year took the form of a two-cylinder machine with the cylinders opposed beneath the bonnet. For the coming season it will have a vertical four-cylinder motor, quite different in general lines from anything previously brought out by the Pope Mfg. Co., of Hartford, Conn. The new motor has been tested for the past 6 months, the claim being made by its maker that it has been driven during that time over the roughest roads in New England and through mud and sand regardless of weather or load. Transmission of power from the motor is through an internal cone clutch, three speed and reverse sliding gear set and shaft drive to a floating rear axle. The gear case as used this season has been retained except that heavier gears and bearings are now in use.

The motor is of the vertical four-cylinder type, with cylinders cast in pairs and having the cylinders, water jackets and heads formed in a single casting, valve ports not being needed because of putting the valves directly in the cylinder heads and actuating them by overhead walking beams, driven from a single camshaft located within the crankcase. The valves are placed side by side in the heads, one in front of the other, and a neat construction is gained by having a single intake and a single exhaust pipe connect with each cylinder pair. Placing the valves in the heads slightly increases the cylinder height and this is further increased by the walking beams.

Aluminum is used throughout the crankcase, the two parts uniting in line with the center of the crankshaft bearings and integral with them is a front casing for enclosing the gears for driving the camshaft and pump. On the left side of the top part are two inspection plates, each with four pegs on the inner face for resting against the case and a readily adjustable center arm for locking the plate in position. The removal of the plates can be accomplished without the use of wrenches or other tools. On this part of the case are extra heavy

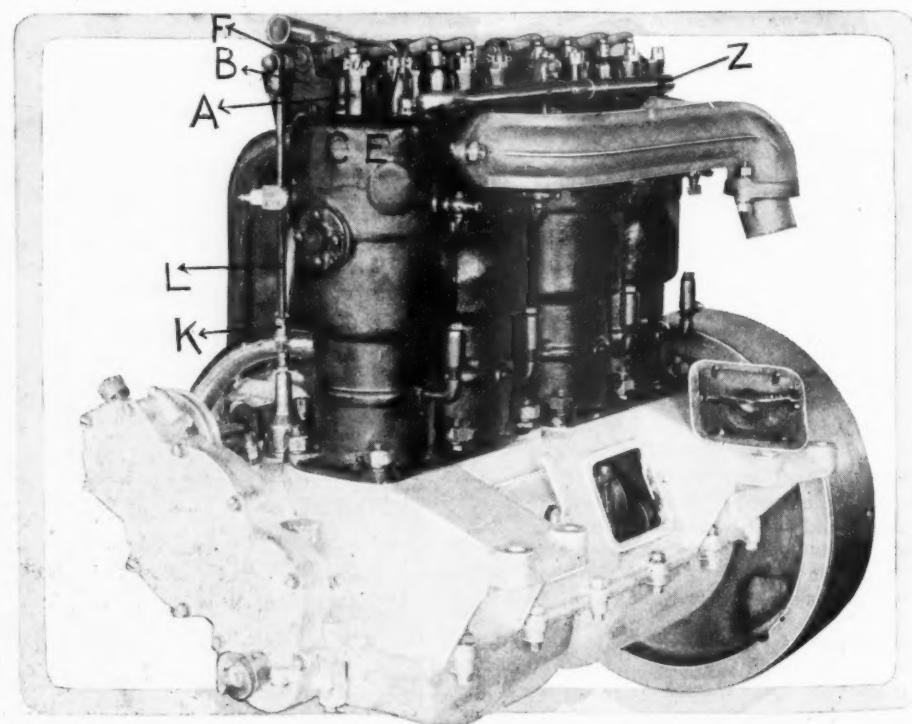
lugs with webbed supports. The lower half of the case is an oil receptacle divided between the pairs of cylinders.

The right side of the engine carries practically all of the operating parts. The method of operating the valves is practically the same as in all motors of this type, the valves being enclosed in cages A, made with four curved arms B, two of which carry the beam for the exhaust valve and the other two for the intake. Two bolts E with castellated nut and cotterpin retain the cages in position. The walking beams C are pivoted to the curved arms on bolts F, held in place by cotterspins. In case a valve has to be removed the cotterpin is taken out, when the walking beam is turned over out of position and the valve cage is extricated. The end of the walking beams pressing on the valve stems have a hood-like appearance,

with the under surface slightly ovoid, giving the same effect as a roller on the valve stem. The pushrods L are made with the upper ends yoked to facilitate attachment to the walking beams and at the lower end have a small coil spring K for keeping the walking beam constantly in contact with the valve stem, so that the clicking noise occasioned when they are not in contact is eliminated. The push rods enter the crankcase through large inverted funnel-shaped sleeves M and have turnbuckles above for adjustment. The two sleeves for each cylinder are retained to the crankcase by a central yoke N, with four arching arms, two of which encircle each sleeve and rest on a flat flange on the sleeve.

Ignition is by jump spark, combined with commutator and secondary distributor P located on the right side of the cylinder between the second and third cylinders. The commutator is inclined and is gear driven by bevels off the center of the camshaft, a small expansion being made in the crankcase to accommodate the bevel on the commutator shaft, and over this expansion is a removable cap, making it easy work to dismount the entire device. A separate oil cup is furnished for lubrication and the bevels within the case are further supplied from the splash. From the commutator heavy high tension wires connect with the spark plugs carried horizontally in the side of the cylinders, snap connections between the wires and plugs being used. Current is supplied by either storage or dry cells, a switch on the dash serving to throw either set into service.

The carburetor is hung low at the right and is supported by a forked bracket Q from the center of the crankcase, the arms of the fork spanning the bottom of the induction pipe to the valves, the bolts holding the piping to this bracket also serving to couple the carburetor proper to the piping. The carburetor is made on the separate float principle, the float cham-



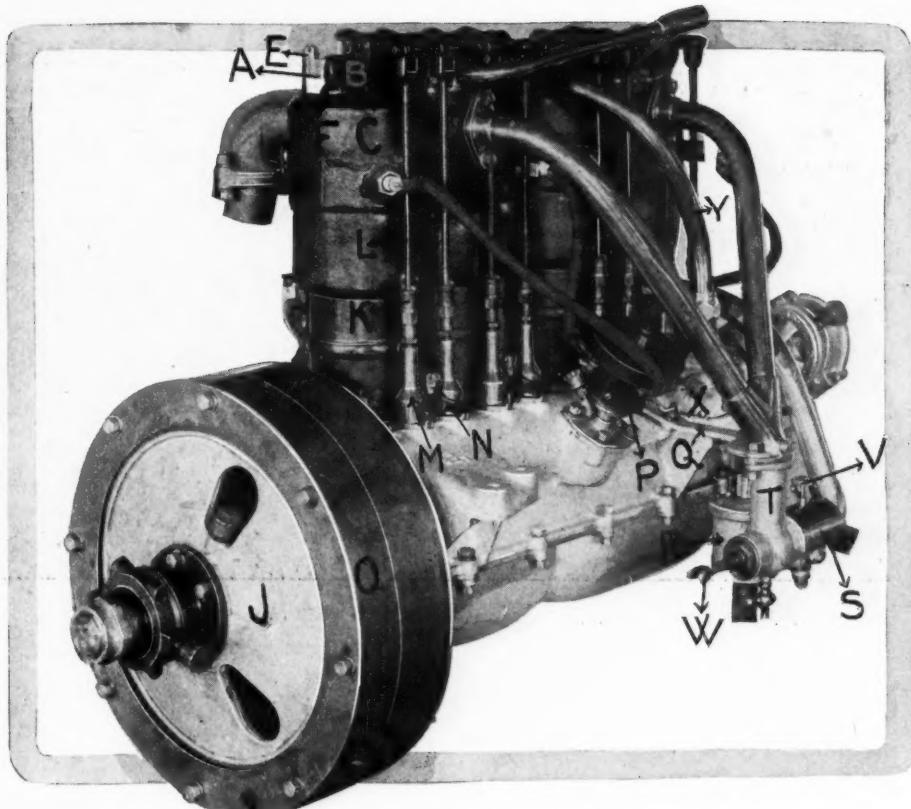
EXHAUST SIDE POPE-HARTFORD FOUR-CYLINDER MOTOR

ber R being low on the motor side and the mixing chamber a horizontal cylindrical chamber with a vertical pipe T at its rear end connecting with the induction pipe to the valves. Hot air is taken from a drum in the exhaust pipe and carried to the front end of the mixing chamber. In the center of this chamber is the spraying nozzle and above it can be noticed a little thumb screw V, by which the needle valve in the nozzle can be adjusted from the outside and the flow of gasoline altered. The throttle is a sliding drum closed at the rear end and acting within the mixing chamber at the front, being a sliding fit in the latter. In the front end of the drum are V-shaped slots for letting mixture pass to the valves, the drawing back of the throttle through the rod W extending through the rear of the casing, drawing the slotted portion of it out of the mixing chamber and gradually bringing the notches into service.

Honeycomb type of radiator made with a combined water tank forms the front of the bonnet, from the bottom of which water is drawn by gear driven pump X, shown in the view of the right side of the motor. In order to have the water enter and leave from the cylinder heads, it is led from the pump by arching pipe Y between the second and third cylinders to a horizontal pipe Z lying along the cylinder heads on the left, this pipe connecting with each pair of water jackets.

Transmitting power from the motor to the gear box is through an internal friction cone clutch, the male part J being an aluminum web working within a circular flange part O bolted to the rear face of the flywheel. Special oil cups are furnished for supplying the clutch bearings and between the clutch and the gear box is a universal joint.

The sliding gear set is housed in an aluminum case composed of two parts; a lower one with integral lugs for support and an upper one having a union with the lower through the center of the main shaft bearings and having an inspection plate equal in size to over half of the area of the top part. The case remains very much as is it in this season's car and the gears are not altered in their general arrangement, but strengthened and made of hardened steel. The feature of having the countershaft C provided with three bearings all contained within the case is still used, the front bearing of the shaft not being between the end gear and the case, but between the first and second gears. Practically in the center of the shaft is another bearing and on the rear end is the third, so disposed that the end of the shaft is entirely within the gear box and danger from dust is thereby removed. The bearing boxes are bolted in place and over each is a large oblong oil receptacle, which is filled from the bath in the case and from which the oil flows to the bearings and thence into the bottom of the case. Phosphor bronze is used in all three of these bearings as well as in the two on the main shaft B, both of which, by the way, are made extra long. These bearings are not immersed in oil, as those on the countershaft, but are lubricated from two oil wells in the bearing case, the oil being carried by a ring to the bearing case.



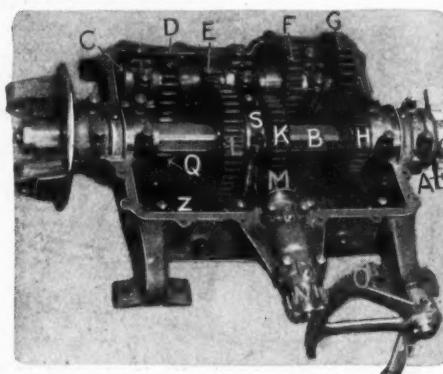
INLET SIDE POPE-HARTFORD FOUR-CYLINDER MOTOR

Three forward speeds and a reverse are gained through the gear set, one lever at the driver's right serving to obtain all. The clutch is coupled to the shaft at A by a universal joint and on the shaft A is the gear H, the gear having a hollow axis to afford a bearing for the front end of the main shaft B, which abuts the shaft A about the center of the front bearing. For direct drive on the high speed the shaft B is locked with the clutch shaft A by moving forward the sliding unit, composed of gears L and K, so that the gear K is interlocked with gear H by means of the dental face teeth on the rear side of H and similar teeth on the front side of K. In this way drive is direct through the case and by propeller shaft to the rear axle, the countershaft of course revolving idly. For the other forward speeds the drive is from the clutchshaft to the countershaft C through the gears H and G, which are constantly in mesh, and to obtain the drive to the shaft B, gears L and E are meshed for the slow speed and gears K and F for the second speed. In reversing an idler Q on a separate shaft in the base

of the case is brought into use by meshing gear L with it, the gear D being constantly in mesh with the idler; the drive from the countershaft is then through the three gears D, Q and L, the interposed one giving an opposite speed.

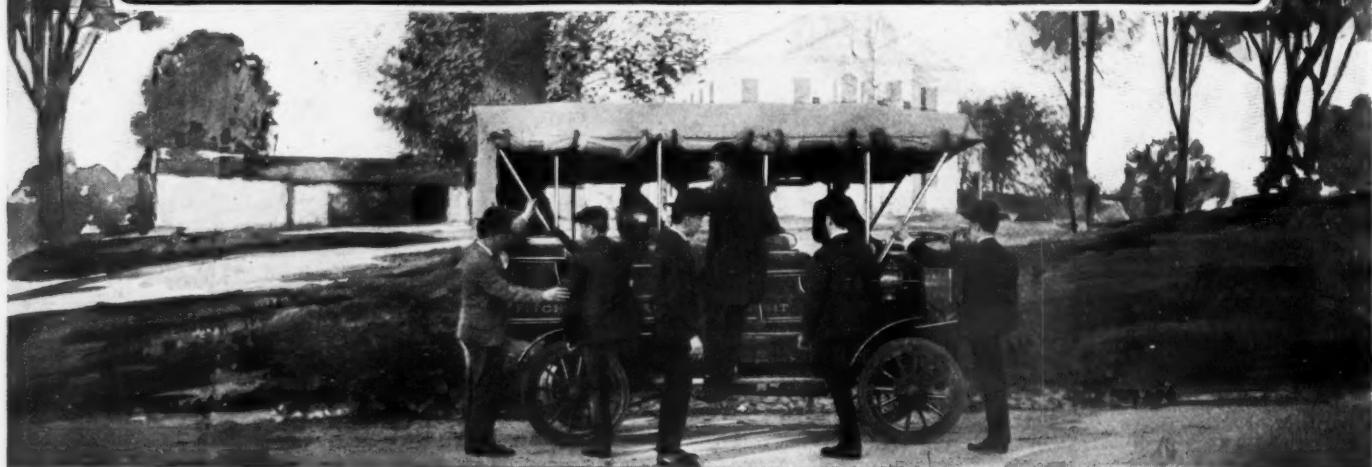
Perhaps the novelty of the gear is met with in the gear shifting mechanism, which is different from the ordinary in that the standard shifting rod attached by yoke and collar to the sliding gears is eliminated and in its place is the collar S on the shifting unit, a yoke working on the collar, but the yoke is connected to a toothed rack carried beneath the piece Z in the base of the case and meshing with the rack is the pinion M attached to a cross-shaft running to the outside of the gear-case, where it carries another pinion N in mesh with the sector O, which is in turn connected with the shifting lever through the arm P. A forward movement of the arm P on the sector gives a downward movement of the sector and revolves pinions N and M to the right, which moves the rack to the rear of the case for slow speed or the reverse and for direct drive and second speed the arm P is forced backward and the rack with shifting unit carried to the forward end of the case. This method of changing speeds gives a positive movement and, owing to the long arm on the sector and the large diameter, compared with that of the pinion N, the moving of the gears requires little effort.

Drive from the gear box is through a propeller shaft with universal joints at either end; these joints being so arranged that all bearing surfaces are thoroughly lubricated at all times and the dust excluded. Steel is used in all parts of them and the propeller shaft is of high carbon steel and runs in phosphor bronze bearings, properly lubricated.



POPE-HARTFORD SPEED CHANGE GEAR

# THE REALM of the COMMERCIAL CAR



WHEN it was announced in the Fitchburg, Mass., papers some time last June that Fitchburg would in the near future have an automobile service of traction to nearby towns and villages not directly on the steam or trolley roads, it was skeptically received. However, it is now an accomplished fact and, what is more, has proved a big and popular success from the start, thanks to several wideawake merchants and professional men of the place, whose foresight saw the possibilities of trade being brought to that city from the outlying districts.

The Fitchburg Auto-Transit Co. is the title of the new line of passenger conveyance, and the first run was made on July 4 this year, when two large motor wagonettes or buses, made by the Knox Automobile Co., of Springfield, Mass., were placed in commission and quickly forged their way into the good graces of the public, both in Fitchburg and other places to which they ran—Ashby, West Townsend and Townsend, places lying to the north and west and close to the New Hampshire boundary. It was at first suggested that the service should be between Fitchburg and Greenville, N. H., via Ashby and Townsend, but it was found that with the limited vehicles employed it would be impossible to provide a satisfactory time schedule and the second named place was cut out of the proposed plans. Since the beginning of the service four trips have been made daily from Fitchburg to Ashby and also four to Townsend, but owing to the condition of the road to the last named place it has been reduced to three, which number of trips has been maintained continuously to the present time. That the instituting of the line has been successful is shown by the fact that over 700 passengers were carried weekly by the machines between the aforesaid towns, the fares of which were 25 cents and 35 cents for each person in either direction.

After the new service had been in operation a short time applications poured into the company's offices from managers of clubs and other societies for the conveyance of their members to places of interest in the state and elsewhere. The company yielded to the popular demand and two touring cars, each capable of carrying

fourteen passengers, were built to special order and supplied by the Knox concern. In these cars parties have been conveyed to such places as Brattleboro, Vt.; Boston, Taunton, Springfield, Worcester, Winchendon, Webster, Gardner, Wachusett Mountain, Mass., and several places in New Hampshire. On one occasion 150 people from a local church were carried from Fitchburg to Wachusett lake and back without any semblance of a mishap, the outing being both novel and enjoyable to all concerned.

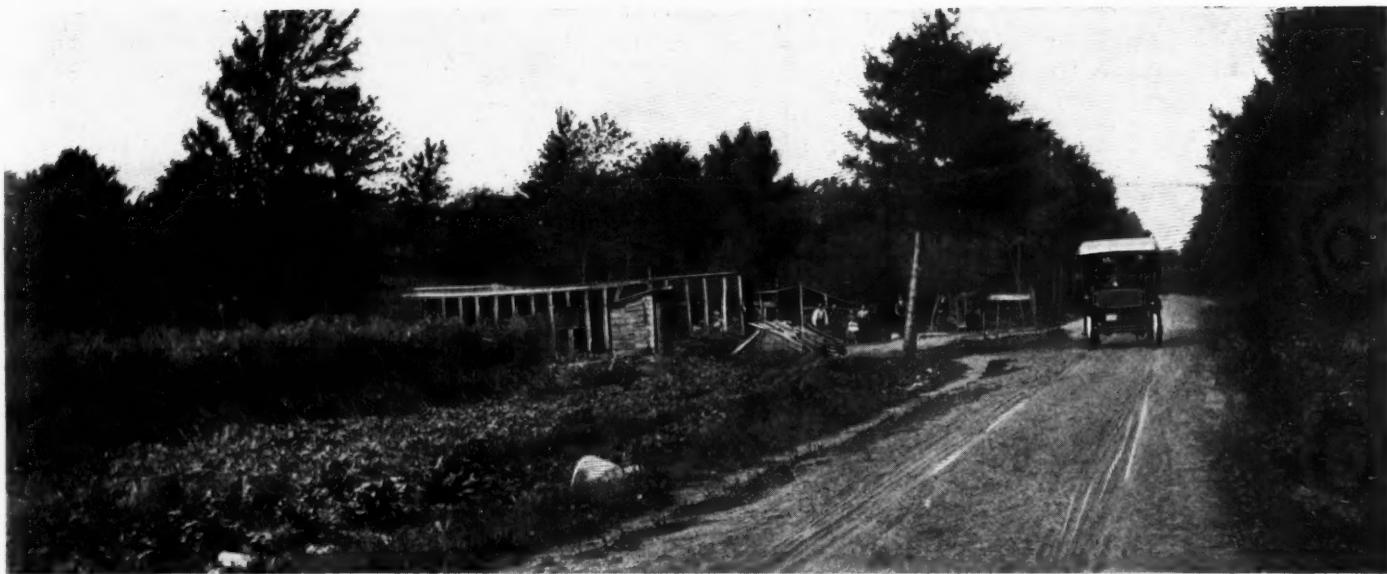
The run from Fitchburg to Ashby is really a pleasant one, the road—a state one—being well laid and fairly level, with the exception of a couple of pretty steep hills, one being just beyond the city line, and the other entering Ashby. The average speed is about 10 miles an hour, the rate of propulsion ascending the steep hills being about 5 miles on the low or second gear. Many pretty sights are to be witnessed on the Ashby trip, snug farm houses nestling among the hills and in the valleys, while wooded slopes and silvery streams abound

on the way. The terminus of the line at Ashby is the Elmwood hotel, a famous hostelry, 108 years old, where the old stage coaches from Boston, Peterboro and Keene, N. H., stopped in bygone days for a change of horses. There at the Elmwood a motorist, whose appetite has been whetted by the exhilarating automobile trip and the fine fresh air, can have the inner man well supplied at a small cost, which makes it the Mecca of near-by motorists.

So far as scenery goes, the Townsend route is equally fine, but the roads, though fairly level, are in an extremely bad condition until West Townsend is reached, when a fine piece of macadam state road, wide and level, is struck. A place which attracts the attention of the passengers on the run on the Townsend route is the Bruce farm, which is occupied by George Duvaney, a French Canadian, and his family, numbering in all thirteen members. The house or shack—it is nothing more than a flat-topped wooden erection, which is more fit for a wood or coal shed—is 3 miles from the school at West Townsend, to which place several juvenile members



PRIVATE PARTY ON OUTING IN LARGE FITCHBURG BUS



PASSING THE CELEBRATED BRUCE FARM, WHERE THIRTEEN LIVELY CHILDREN RULE SUPREME

of the family are conveyed in a team every morning and taken back in the afternoon.

The opening up of Townsend by the Auto-Transit Co. has not only proved a boon to the residents, but also to the drummers, who can now make their calls and get back to the city the same night, where formerly they were compelled to make an overnight stay.

One of the most satisfactory features of the working of this new automobile service is that not a single accident has marred the running of these machines from the commencement, with the exception of several minor mishaps that have not interfered with the schedule of trips.

The cost of operating so far this season has been reasonable, 1 gallon of gasoline being sufficient for each machine to travel 8 miles. The total cost of running each machine, including man, repairs, rent of garage, gasoline, oil, carbide, etc., etc., amounts to 10 cents per mile. The future plans of the company, of which two well-known Fitchburg men—Horace F. Gove, president, and Ernest C. Ford, secretary

and treasurer—are at the head, are bright and it is expected that at the general meeting of the company in the near future outlines of new machines and the opening up of new routes will be submitted.

#### CHANCE FOR A PROMOTER

While the opportunities for motor bus investments are probably more numerous than interested capital could just now care for, local motorists have wondered why some one has not investigated the possibilities for a paying commercial car venture in Salem, O. Particularly attractive is 10 miles of cross-country roads between Salem and Lisbon, the latter city the county seat. At present the only connection between the two points is an unpretentious railway line, with limited passenger service. In spite of this, the travel is heavy and many drive daily, Salem's population being about 10,000 and Lisbon's 6,000. The road is in good condition, its objectionable features being two hills, one about a quarter and the other about a half mile in length, but of only moderate

grade. Almost half way between the two cities is Shelton's grove, a popular summer park, which would be very liberally patronized should a regular bus line offer a more convenient mode of travel. It is the nearest park, of any consequence, to Salem. Salem has 13 miles of paved streets and only about 4 miles of street railway. Consequently, there is a crying demand for the transportation facilities that a motor bus line would meet. Two long avenues, extending from the northern to the southern boundaries of the cities, have no car lines and will probably never have, because of the aversion of certain property owners who do not wish to see the pavement disturbed. Residents who live on these avenues would welcome a motor bus line enthusiastically, it is asserted.

#### TALK OF STEAM LORRIES

Testimony as to the reliability and practicability of a steam lorry has been given to the Thornycroft company of England by Vickers Sons & Maxim, who have been using one machine continuously for 5½ years. It is fitted with a 25-horse-power engine, supplied with steam from a high-pressure tubular boiler. Cannon & Gaze, a concern in Kent, have been using one of these lorries for 5 years. A sample of a week's work shows it travels 176 miles in that time, carrying 23 tons. This only includes 5 days, 1 day being taken to clean out the boiler. Coal bills, they say, are under 1 ton a week, while the repair bills generally run under \$350 a year. To start out with, this lorry was designed to carry 3 tons and haul a trailer with 2 tons, but it proved more economical to discard the trailer and load the wagon with from 4 to 5 tons. The concern thinks the lorry a great saving, as most of its journeys would be too far for horses, while the railway rates and carters, delivering at the other end, would eat up the profits.

Another testimonial on the merits of the steam lorry is given by Smith & Forrest, oil refiners and importers at Manchester, England, who have a lorry and trailer which have been working nearly 3 years and in that time have run 13,169 miles and carried nearly 8,000 tons. The rig is used to carry pitch or oil for road



SMALL CAR ON TOWNSEND ROUTE LEAVING FITCHBURG



GUNNER'S ENTRANCE, GERMAN MILITARY WAGON

repairs within a radius of 15 miles of the plant. It is enabled to deliver direct, and thus save a lot of time. They ascribe some of their success with the lorry to proper lubrication, care being taken that the motor cylinders are well supplied with a proper quantity of heavy, high test oil, other grades not standing the heavy service of the machine.

#### ARMORED MILITARY CAR

It has remained for the Germans to bring automobile construction to bear on warfare and one of the most recent developments along these lines has resulted in an armored automobile with conning tower and a rapid fire gun attachment. The machine is from the workshops of the Daimler people. As yet it is an experiment, but recent tests show that it ought to in a short time realize the dreams of military experts who have been for years looking forward to a safe and rapid conveyance for heavier arms. Light pressed steel is used as a covering for the motor hood and the same material is used to shield the gears and the driver's seat. Needless to say, the conning tower is also covered in the same way. The steel is scarcely  $\frac{1}{2}$ -inch thick and the whole conveyance weighs little more than some of the heavier types of touring cars. The driver is seated in a compartment separate from the tower part, but may enter it through a connecting door. Two small openings in the front give him an opportunity to see the road before him and to guide the car. A smaller opening between his compartment and the tower permits the

possible to climb steep grades. A 60 per cent grade is mounted as easily as the ordinary touring car climbs a slight hill, it is claimed. Without the four-wheeled drive this would be altogether impossible.

In the tests recently made, the machine made an average speed of 25 miles an hour on the country roads and made detours into broken fields and roads with marvelous ease. At all times it showed itself capable of covering the ground and being maneuvered with remarkable ease. The test as to its ability to maneuver on broken ground was watched with especial interest by members of the military, to whom the question of handling guns on heavy ground is of great importance. The motors are four-cylinder, 40-horsepower, of the Mercedes type and are more solidly built than the average touring car motors. During the test not a break or strain or heated bearing was evident. The question of the armor plate has caused considerable discussion among the experts. The plate used in the construction of the armored automobile is of sufficient thickness to shield the gunner and driver and the motors from light ordnance such as used by the machine and by cavalry and infantry. Heavier plate cannot be used, since it would make the machine too heavy and unwieldy. It has been the desire of the makers to have a machine light enough to travel rapidly and cross light bridges and at the same time be armored and also effective as a carrier of dispatches and messengers.

Accurate measurements of fuel and other tests have not yet been made, but it is be-

gunner to direct him. An outside door fastened on the interior permits him to leave the car if he so desires. The tower has plenty of room inside for the gunner and the machine gun and also the ammunition, which is stored in compact apartments. The top of the tower through which the gun is pointed can be rotated so that the fire can be directed to any quarter. The gun by its machinery can be projected or withdrawn from the opening as the gunner desires. The driving power is to the four wheels, making it

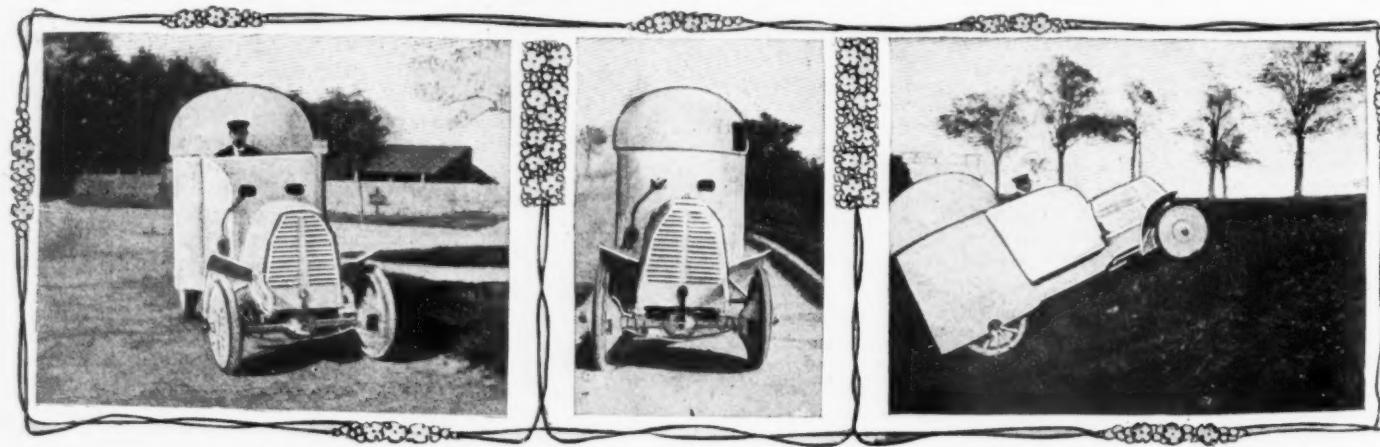
lieved by those who have watched the machine work that it can be handled as economically as to fuel and repairs as the ordinary freight truck in use in many of the larger German cities.

The encouragement with which the builders of the armored automobile have met in the tests has caused them to announce that they have under construction a motor boat, eight cylinders, 220-horsepower, which will be armored and fitted with a rapid firing gun. The boat will be given a test, it is said, in next year's motor boat trials at Monaco. It will, they declare, be a revolution in the building of dispatch and small torpedo boats.

This same firm is said to be working on a light armored hospital wagon which will be able to carry aid to the wounded in the thick of battle.

#### BUCKEYES LIKE THE IDEA

R. M. Owen, proprietor of the Ohio Oldsmobile Co., of Cleveland, whose establishment was recently moved to 27 Vincent street, back of the Hollenden hotel, the old stand of the defunct Cleveland Automobile & Supply Co., has been able to work extensively into the commercial vehicle side of the game. He fitted up the Springfield-Jamestown automobile bus line, which was the subject of a recent article in MOTOR AGE, and last week he sold two Olds buses to John Jenks, of Mechanicsburg, O., who will operate an automobile stage line between Mechanicsburg and Urbana, giving regular two-hour service to connect with traction lines for Springfield, Dayton, Cincinnati and other large cities. Another decided novelty credited to the genius of Mr. Owen is an Olds railroad inspection car fitted up with a covered top and serving as a special distributing car for the Dayton Journal, an enterprising newspaper. Dayton has nine traction lines radiating in all directions and the car makes a circuit of a large number of towns every day delivering bundles of papers. It has a speed of 40 miles an hour and keeps on the schedules of the high speed traction cars of that district. It takes the place of automobiles used for this purpose, which, while most satisfactory while the roads were in good condition, were apt to delay things during muddy weather. If this car proves satisfactory others will be purchased. In general lines it follows the construction of the Olds railroad inspection car brought out some years ago.



DAIMLER MILITARY WAGON WITH FOUR-WHEEL DRIVE MANEUVERING AND DOING ROAD WORK

# COMMERCIAL STEPPING STONES



HOSE WAGON MADE FOR THE TORRENT HOSE CO., OF ITHACA, N. Y.

**Epworth League Scheme**—An automobile stage line is to be run between Corpus Christie, Tex., and the Epworth League camp. The line will probably be in operation by early spring.

**Sees a Good Thing**—O. L. Mead, of Monroe, Mich., is going to start an automobile service between Ann Arbor and Saline. Accommodation for twenty-two is provided and four trips per day will be made. The motor line is specially suitable in that neither steam nor electric lines connect the places.

**Quick and Speedy**—Hipp's Parcel Delivery is the name of a new institution which has recently started business in Cleveland, O. As its name implies, it will deliver packages throughout the city, using for the work several gasoline delivery wagons recently fitted up. Rates are moderate and the service is speedy and reliable, so it looks like a winning proposition for the energetic promoters.

**Praises Automobile**—Charles E. Ladd, superintendent of public parks of Springfield, Mass., uses an automobile in making all of his daily inspections of the parks and boulevards in and around the city. In speaking of the merits of the automobile for such work he says: "In September, 1902, I purchased a Knox single-cylinder runabout. Since that time I have used it summer and winter, through rain and shine, except when the ground has been deeply covered with snow. About March 1 of this year I placed an odometer on my machine, which shows that I have run more than 10,000 miles this season. I do not feel that it is an extravagant statement to make that this machine has been driven more than 40,000 miles during the past 3 years. The simplicity, reliability and durability, together with the reasonable cost of maintaining the automobile, places it, in my opinion, second to no machine on the market. I have had the cylinder rebored but once and, so far as I can see, it runs as well as when I purchased it and is, evidently, good for many years' service. As to the actual cost of running the machine, I find that I go from 18 to 23 miles on a gallon of gasoline and use 1 quart of oil to every 175 miles. My experience with tires has probably been about the same as that of other owners of

automobiles. I consider the average distance that a tire can be run to be from 6,000 to 7,000 miles, although I have recently taken off a tire that has been run 10,000 miles."

**They Beat the Band**—Lyon & Healy, pioneer music dealers of Chicago, Ill., who have recently started using three Knox wagons for delivering pianos in and around the city, have placed an order for three more wagons of the same make. This firm has for several years hired teams for its delivery work and since the expiration of the contract for this work has commenced its own delivery system, using horses and automobiles. So far the preference is for automobiles, which are making much better time and doing all-round more satisfactory work than their rivals, the horse-drawn vehicles.

**Fire Hose Wagon**—The Neustadt Automobile & Supply Co., of St. Louis, Mo., has recently manufactured for the Torrent Hose Co., an Ithaca, N. Y., concern, a fire hose wagon built after Neustadt design. The wagon gear part is of exclusive Neustadt design, the 22-horsepower motor is manufactured by an outside concern, however, and consists of a pair of horizontal cylinders of standard lines, coupled up with a planetary gear box with final drive to a differential countershaft, placed cross-wise in front of the rear axle, and connected by two side chains with the rear wheels. The running gear is in strict conformance with present methods, including steel frame work, long, half-elliptic springs and artillery wheels with 3-inch solid tires. On the front beneath the foot-board is a finned tube radiator for cooling the motor cylinders. Nobody could mistake the body as being designed for anything else but fire department work, it being fitted with low steel sides and heavy brass railing, nickel-plated, with regulation cross step at the rear

and brass uprights at either side. The driver's seat is a double cross one in front, upholstered, and around the right of it are such operating parts as vertical steering column, change speed parts, brake levers and throttle and spark control levers. The wagon load is 2,000 pounds of rubber hose, four men and the driver.

**Tribune in Line**—The Tribune, one of the most enterprising daily papers in Oakland, Cal., has installed the first of a fleet of motor delivery wagons that will soon be used exclusively in distributing the Tribune throughout the city, suburbs and near by places. The Tribune hopes to complete its entire city delivery within  $\frac{1}{4}$  hour after the last copies are off the press. The wagons are typical gasoline machines with forward bonnet and radiator and drive through a propeller shaft. The carrying compartments are of delivery design, with rear entrances and curved canopy over the driver. The use of automobiles for newspaper delivery is rapidly gaining ground in many large cities where competition is keen and early delivery means larger sales. This is particularly the case where several editions are published daily.

**Nothing Doing?**—The Union Transportation Co., the title of the company organized by the colored people of Nashville, Tenn., to thwart the successful operation of the Jim Crow law as passed by the last legislature and which became effective on July 5, seems to have dropped out of the affairs of the motor world. After an unsuccessful attempt to operate four second-hand cars that were purchased from New York dealers, the company declared the machines of no use and sent a representative to St. Louis, where it was stated that no expense would be spared to start the venture on a paying basis. At the time of the departure of the company's representative it was given out that nine cars were to be bought and used in the transportation business. The cars have not arrived and it is believed that the company has gone out of business. Many more negroes are riding on the street cars than heretofore and by the reports of the street car company for last month it was shown to have been a banner month in the transportation department, the colored folk preferring to ride in the trolleys.



WATER COMMISSIONER IN SPRINGFIELD, MASS., USES KNOX CAR



GARAGE OF JOPLIN AUTOMOBILE CO., AT JOPLIN, MO.

**Hawaiian Representation**—The control of Hawaii territory for Winton cars has been given to the Pioneer Automobile Co., of San Francisco.

**One in the South**—Jacksonville, Fla., now boasts an automobile factory, conducted by M. C. Hutto, formerly manager of the East Coast Automobile Co. The model he is making is a 24-horsepower four-cylinder car.

**Place Fiat Agencies**—Hollander & Tanager, of New York, have placed Fiat agencies with the Harry Fosdick Co., of Boston, for New England, and the Rochester Automobile Co. Negotiations are in progress for a Chicago agency. Agents are to be appointed in the leading cities.

**Nails Typewriter Rumor**—The rumor has been persistent that the Smith Premier Typewriter Co., of Syracuse, N. Y., would soon enter into the business of manufacturing automobiles, but the rumor has been denied by the officials of that company. Alexander T. Brown, one of the heaviest stockholders in the H. H. Franklin company, is vice-president of the Smith Premier Typewriter Co.

**New Chicago Maker**—Chicago has another automobile factory, though at present it is on a small scale. Torgerson & Hansen, 228 One Hundred and Eleventh street, Roseland, are finishing their first sample, which is a single-cylinder runabout. The motor is of the horizontal pattern. The firm has not decided at what price the car will be marketed, but hopes to put it out to sell at a figure which will suit the pocketbooks of the class of people interested.

**Seeks Factory Site**—The Forest City Motor Car Co., a company formed at Cleveland a short time ago by W. Stone, U. G. Smith, C. H. Taylor and others, has a proposition before the board of trade of Massillon, O., relative to the location of its plant in that city. At present the company is building cars in a small way, but it has made plans for a factory of considerable size and desires to begin work for next year as soon as possible. The proposition involves the formation of a \$100,000 company, the Massillon people

to subscribe to \$30,000 worth of stock. It looks as though the deal might go through as the people of that little city are hot after new factories.

**After Salon Exhibit**—Joseph S. Josephs, manager of the Auto Import Co., of New York, sailed on the Kron Prinz Wilhelm on Tuesday, to arrange for the shipment of the Rochet-Schneider Paris salon exhibit for the Madison Square garden show.

**Gets Reo Agency**—The Reo agency in Washington, D. C., has been secured by L. S. Jullien, formerly with the Cook & Stoddard Co., and he will carry the full Reo line at the garage of the Cahill Automobile Co., on L street, a part of which he has secured.

**Going Uptown**—The Homan & Schultz Co., New York, agent for the Rambler and the National, will leave the Thirty-fifth street district and join the uptown movement. It will on February 1 take possession of a five-story garage, 50 by 100 feet, which is now in course of construction for this company on West Sixty-second street near Broadway, and between the White and Cadillac garages.

**Tips on Portugal**—Some details of the import trade in automobiles in Portugal are to hand, from which it is learned that in 1901 twenty cars, valued at \$37,915, were imported, eighteen of them coming from France. In 1902 the number had increased to fifty-one, of which thirty-six came from France, five from Germany and the balance from other countries. In 1903 the total automobile imports were valued at \$212,531 for 118 cars, of which France furnished eighty, Italy ten, the United States thirteen and Germany three. In 1904 the number of cars imported was 109, valued at \$229,265, while in 1905, up to May 31, the number was forty-two, valued at \$81,125. The duty on finished automobiles is \$120, and on unfinished cars \$70. The principal firms engaged in the automobile business in Lisbon are as follows: A. Beauvalet & Commandita, 31 Praça dos Restauradores; Sociedade Portuguesa, 4-26 Rua do Jardim do Regedor; F. Street & Co., 156 Rua do Poco dos Negros. In Oporto the principal dealers are:

Teixeira & Irmao, Rua da Sa da Bandeira; Empreza Automobilista do Porto, Rua de S. Lazaro; Joao Garrido, Rua de Passos Manoel. All have good garages.

**Kelsey Promoted**—C. W. Kelsey, former representative of the Maxwell-Briscoe Motor Co., at Philadelphia, is to be the general sales manager of the company with headquarters at Tarrytown, N. Y.

**Cutting Signs Lease**—General Cutting, New York representative of the Olds Motor Works, attended the meeting of Oldsmobile agents at Lansing last week. Before his departure he signed a lease for a three-story building on West Fifty-first street, for use as an exclusive Oldsmobile garage and repair shop.

**Another Merger**—Rumors from Pontiac, Mich., have it that a deal is pending by which the Pontiac Buggy Co. will become a part of the Cadillac Automobile Co., of Detroit. It is said that R. F. Monroe, controlling stockholder and manager, proposes to acquire the interest of the other stockholders and then make the merger. It is figured that the increased capacity of the Cadillac plant will be able to use the entire output of the Pontiac company.

**Talk Over Selden Suits**—The meeting of the A. L. A. M. executive committee, held in New York last Thursday, was devoted mainly to consultation with S. R. Betts, senior counsel, and other Chicago and New York counsel, on the status of the Selden patent suits. The taking of the final testimony of the plaintiff in rebuttal will begin at Rochester next Wednesday. The final arguments will be made in January and the case will then be in the hands of the court for decision.

**Austrians Raise Prices**—Information comes from Austria that the rubber goods manufacturers in that country have decided to raise the prices on all kinds of rubber goods, tires included, because of the enormous increase in the price of raw material. Goods over the price of 10 kronen will go up 20 per cent, the increase to go into effect at once. In Germany the rubber men protest they cannot longer continue to sell tires and other technical rubber goods at the prevailing prices and an effort is being made to get the larger makers together, the competition being so fierce that they cannot raise the prices in accord with the increase in the price of raw material.

**Working 22 Hours Daily**—The Anderson & Sons Co., of Detroit, Mich., has just rearranged its working schedule so that its day shift works 10 hours and the night shift 12 hours, so that the factory, notwithstanding the fact that it has been greatly enlarged, is in operation 22 hours in every 24 hours. Of the automobile part of the company's work, Mr. Anderson says: "The automobile manufacturers are placing their orders freely. We are making 6,000 crankshafts for Detroit manufacturers, and are beginning to hesitate about making promises for early deliveries for any more. The business already contracted for next year is equal to this year's entire product. A new grinding machine we are installing to finish crankshaft work will do the work within a quarter of a thousandth of an inch. It is the use of such machines that has made

the reputation of American manufacturers, and enabled them to compete with the world, no matter how low wages may be in other countries."

**Another German Show**—The next annual show of the Automobile Club of Germany will be held during February and is expected to be the largest show ever held in the Fatherland.

**Olds People Entertain**—Oldsmobile agents from all parts of the country were entertained at the factory last Friday, shown all the fine points of the 1906 models, given a banquet followed by a vaudeville show, and the next day they were all taken over to Ann Arbor to see the Wisconsin-Michigan football game.

**Another Big One**—Joseph S. Heller, of New York, importer of the Pipe cars, has received from his architect plans for a seven-story and basement garage, shortly to be built by him on upper Broadway, near Sixty-sixth street. Mr. Heller also contemplates the opening of a garage in Brooklyn.

**Winton Tour Ends**—The trans-continental automobile exposition trip, conducted by Sales Manager Shanks, of the Winton Motor Carriage Co., ended in Stockton, Cal., Friday of last week. The company's new model K was exhibited in twenty-five different cities from coast to coast, the car having been on the road 55 days and having passed through seventeen states and the Dominion of Canada.

The route was from New York west through Chicago and St. Paul to San Francisco, and then east through Canada via Canadian Pacific Railroad.

**Track in Moline**—A circular test track, 22 feet wide and a quarter of a mile in circumference, is being built at Moline, Ill., by the Moline Automobile Co. for testing purposes. The company has added a new model to the two it has been making—a 35-horsepower car. It is said to be counting on turning out 400 machines in 1906.

**Crankshaft Orders**—The Anderson & Sons Co., a tool manufacturing concern located in Detroit, announces that it has already received orders for 6,000 crankshafts from Detroit automobile manufacturers. For this purpose it is using a new grinding machine which is said to do the work within a quarter of a thousandth part of an inch.

**To Make Engines**—The Buckeye Gas Engine Co., of Delta, O., was perfected last week, being incorporated under the state laws of Ohio by C. C. Reed, J. M. Longnecker, F. Briggs, C. R. P. Waltz, N. F. Carmon, W. T. Saxton, O. J. Wisman, G. R. Anderson, A. J. Fraker, John Latzer, Byron Yarnell, W. E. Fowler and W. E. Ramsey. The new concern will employ from fifty to 100 men and will manufacture gasoline engines, motor engines and special machinery. The company has purchased the plant of the Underwood Mfg. Co., at Elmore, O., and will move

the machinery to Delta. A whole block has been purchased for the erection of the buildings, the first building to be erected to be 108 feet long and 55 feet wide when it is completed.

**More for Houpt**—The E. R. Thomas Motor Co. has added to the territory of Harry S. Houpt, its New York agent, Fairfield county, Conn., which includes the cities of Bridgeport, Norwalk, Stamford and Danbury. The New York agency territory already includes besides Greater New York all of Long Island and Hudson and Bergen counties in New Jersey.

**To Boom Gaulois Tires**—The Gaulois tires are to be exploited in this country by the Gaulois Tire Co., a corporation recently formed, subsidiary to the Decauville Automobile Co., of New York. This tire is made at Clermont, Ferrand, France, by Bergougnan & Co. It has never before been introduced in this country. Paul L. Snutsel is the manager of the new concern.

**Corbin Trip Over**—Manager Bretz, of the Corbin Motor Vehicle Corporation, New Britain, Conn., completed his 2,800-mile business tour in a Corbin car, at Pittsburgh. The route followed included the principal cities through the Mohawk valley to Buffalo, thence to Cleveland, Detroit, Chicago, Indianapolis, Cincinnati, Columbus and Pittsburgh. Several agencies for the Corbin car were closed in each of the states passed through during the tour. The novel method worked well.

## LEGAL LIGHTS AND SIDE LIGHTS

### BACKS UP THE MOTORIST

Frederick Coleman, representing the White steamer in England, has just scored a victory in the courts which is hailed with delight by John Bull's leading motorists. His contention that driving above the legal rate of speed on a highway that was deserted at the time did not endanger the public was sustained by Recorder Philbrick, of Essex county, before whom the case came on an appeal. Coleman was arrested and fined for driving at a speed dangerous to the public on the London road, Lexden, near Colchester. He admitted driving at a speed above the legal limit, but denied having driven to the public danger. Convinced that the motoring world was anxious to know if it was possible for an automobile to be driven at a speed exceeding the legal limit and yet not to the public danger, Coleman took an appeal. Before Recorder Philbrick he succeeded in proving that no one was in danger at the time. The counsel for the prosecution pointed that in fixing the legal speed limit of 20 miles an hour the legislature must have arrived at the conclusion that anything above that limit must be dangerous, whether there be any actual danger at the time or not.

### CLAIMS A NUISANCE

An injunction suit has been filed against the Haughton Automobile Co., of Washington, D. C., by the Dewey Hotel Co. and others, the claim being made that the company maintains a nuisance in its garage in Stanton court, in the rear of the Dewey hotel. The nuisance complained of consists of "unseemly noises and foul odors."



arising from gasoline cars stored in the company's garage. The case has occasioned a lively discussion among many of the leading motorists in the city who see in such an action trouble ahead in the way of private garages, located on the rear of residential lots.

### FARMERS' WISE WORDS

At the thirty-ninth annual session of the National Grange, Patrons of Husbandry, which was held in Atlantic City last week, Worthy Master Aaron Jones, in the opening speech, paid his respects to automobilists who travel the roads at a speed detrimental to the safety and comfort of other road users. He said in part:

"No innovation in modes of travel has caused more general comment than the appearance of automobiles and the consequent disturbance of travel. Accidents of the most shocking nature have been of common occurrence. In some sections of the country travel upon the country roads has been reduced to the driving absolutely necessary, cutting out all pleasure driving. There is no doubt of the right of automobilists to legitimately use the highways, but that use should be regulated by wise laws vigorously enforced and the penalties for their violation should be sufficiently severe to serve as an effectual warning against violations by others. Automobilists should unite with the people in the work."

### NOT A HOUSEHOLD EFFECT

The treasury department has been advised of an interesting decision just rendered by the board of general appraisers in the case of John Magee against the collector of customs at New York. Mr. Magee contended that an automobile imported by him should have been admitted free of duty under paragraph 483 of the existing tariff act, as a manufacture of the United States returned, under paragraph 504, as a household effect, or under paragraph 697, as the personal effects of a returning resident of the United States. The collector of customs, in transmitting the protest of Mr. Magee, stated that the automobile in question was of French manufacture, being a 24-horsepower Panhard, which, not being disputed by Magee, made it necessary for the board to overrule the claim to free entry under paragraph 483. The board found from the oath or declaration of the importer that he and his family sailed from the United States on February 7, 1905, and returned on July 4 of the same year. It is apparent that this declaration is inconsistent with any right to free admission under paragraph 504, which provides that the article in question must have been actually used abroad by the importer for not less than 1 year. Paragraph 697 limits the right of free entry of articles purchased abroad by residents of the United States to a value of not more than \$100 upon complying with the regulations of the treasury department. These facts left Mr. Magee with not a leg to stand upon, and his protest was therefore overruled by the board of general appraisers in New York.

# ROADSIDE TROUBLES

*An Ounce of Prevention*  
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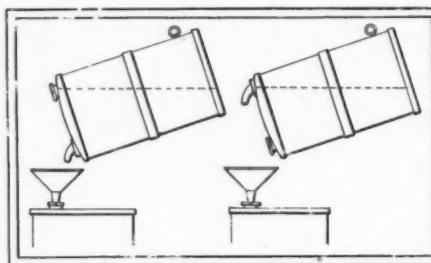
By Chas. E. Duryea

**POURING OIL**—Some one has said: "Our life is made up of little things," and it is certainly true that knowing the difference between right and wrong ways of doing even little things goes far to make or mar the pleasure of using a motor vehicle. It would seem that everyone knows how to empty the contents of an ordinary tin can, but such is far from the truth. The opening is usually in one corner and it seems natural to turn this corner down for the purpose of pouring. If the can is full the contents run down the outside and, as air bubbles enter at irregular intervals, the flow is irregular, so that it is impossible to pour steadily or into a small opening. If, however, the can is turned over, bringing the opening at the highest point, the difference in result is almost magical. The liquid flows steadily, can be poured as slowly or rapidly as desired and the danger of spilling is very largely reduced. The condition holds true unless the can is almost empty, when, of course, it should be turned with the opening at the bottom. The illustrations show the matter quite clearly. With a little practice one can fill tanks and oil cups without a funnel, which is not only decidedly convenient at times, but in connection with heavy oil, avoids the use and the necessity of cleaning the funnel. If not cleaned, the heavy oil gathers dirt, which goes into the oiler at the next filling, for which reason, if for no other, the use of a funnel should be avoided. When a funnel is necessary a sheet of paper rolled into a horn and held with a common pin makes a very satisfactory one, and can be thrown away after using. It will even serve very satisfactorily for use with water.

A tin pail with a wire around the edge is better to pour from than a wooden one, for the water will not run over the edge and down the outside of the pail so easily. A tin can or pail with or without a bail, fitting outside the lubricating oil can requires no additional space and is fre-

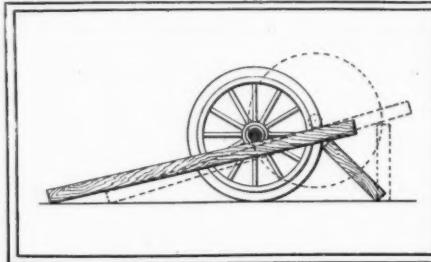
quently handy for water, washing hands, carrying gasoline, etc.

**Care of Hands**—Caring for an automobile is dirty work and how to clean one's hands is a question of importance. If the skin is soft and smooth, the dirt and oil do not enter the surface and are readily removed with soap, but if hard and rough,



WRONG WAY AND RIGHT WAY TO POUR OIL

the situation is different. A few drops of glycerine, diluted with an equal or greater part of water, well rubbed into the hands each evening will keep them soft and smooth and without the disagreeable redness and unpleasant feeling caused by pure glycerine. Glycerine has a great affinity for water and not only spreads with dif-



GOOD SCHEME FOR A TEMPORARY REPAIR

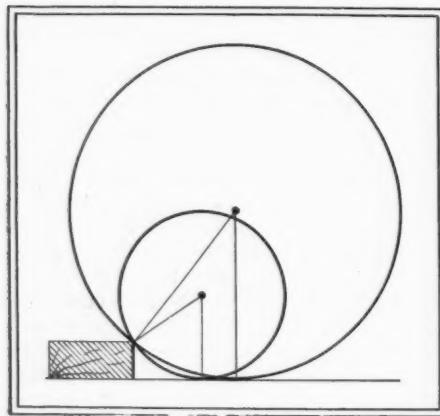
ficulty, which prevents it from reaching the crevices where it is needed, but it withdraws the moisture from the skin and tends to inflame it. Dilution with water prevents this and makes it a very agreeable dressing, superior to most, for chapped hands and faces.

Before taking up a dirty job, if one will soap the hands well with a toilet soap, the crevices will be filled, largely keeping out the dirt, and since the soap dissolves readily, the hands are readily cleaned. Washing the hands with thin oil will frequently remove the dirt, without making the hands rough, as is the tendency of gasoline or kerosene. Strong soaps remove the dirt, but are likely to roughen the skin. Abrasive soaps, like Sapolio, are considered bet-

ter by many people. Rough corn meal or saw dust frequently serves nicely. Pine sawdust, moistened by turpentine, followed by a good lather, is recommended. Ammonia is unpleasant to use, but it has a tendency to convert the oil into soap, thus rendering it soluble and is, therefore, favored by some.

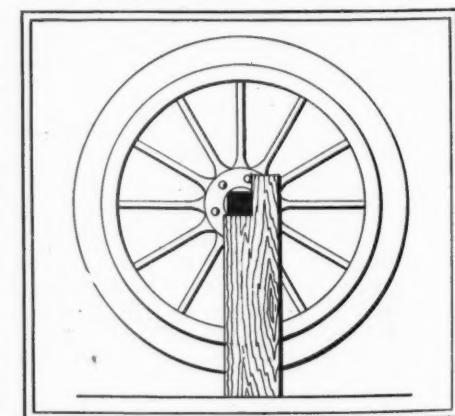
**Cuffs**—The average man would take the stitch in time that saves nine more frequently if he was not afraid of soiling his cuffs. An automobile is a dirty machine at best, and with most makes it is not easy to make adjustments without preparing for the work by donning overalls and blouse, or, at least, removing coat and cuffs. This the average driver does not like to do, unless absolutely necessary, so he keeps going, trusting that nothing will happen of serious import before he reaches his destination. If, on the other hand, he could make the adjustment with little trouble, he would most likely do it and prevent greater trouble. Cuffs serve to keep one's coat sleeves clean, as well as for ornamentation, but they lose their value for these purposes if they are handled by the soiled fingers which usually result from tinkering an automobile. If, however, they are fastened to the inside of the coat sleeves, instead of to the shirt sleeves, they may be removed readily with the coat and without handling. They can be so fastened by most forms of cuff holders and many up-to-date tailors attach a button to the inside of the coat sleeve, at the proper distance from the end to hold the cuff, so that it projects just the right amount, no more and no less. This arrangement is most satisfactory for daily use and at the first sign of trouble, the cuffs and coat go off together, leaving the man free to make any reasonable adjustment. After one has worn cuffs attached in this manner, he will wonder why he ever used any other.

Emergency jacks for raising the car wheels when accidents occur on rural roads are such as environments permit. One time a rail from a fence with a block or stick of stove wood for a fulcrum does the work, the rail and block being as shown in heavy lines, when the car is slightly pushed ahead, until the fulcrum is vertical and the wheel raised from the ground. A vertical block with shoulder on the end can then be placed as shown. Large road wheels have a great advantage over smaller ones in passing over road obstacles, as is shown in the illustration. The wheels' radii can be compared with the block's height.



ILLUSTRATING LARGE WHEEL ADVANTAGE

**EDITOR'S NOTE** — This is the nineteenth and last of a series of articles by Charles E. Duryea. These articles will be prepared for publication in book form and will be distributed by the American Motor League to its members during the coming year.



QUICKLY MADE JACK FOR THE ROAD

## BRIEF BUSINESS ANNOUNCEMENTS

**Chagrin Falls, O.**—The stables and garage of F. H. Townsend, recently destroyed by fire, are to be rebuilt.

**Nashville, Tenn.**—A new garage is to be opened in the building on Third avenue, north, formerly occupied by the Huber Mfg. Co.

**Auburn, Ind.**—The Model Gas Engine Works will remove from this city to Peru, where new buildings have already been commenced for the company.

**Providence, R. I.**—The Shepard company has secured the Columbia line electric and gasoline for Providence. The business has been previously handled by the Davis Co.

**Long Island City, N. Y.**—Mohler & DeGress, manufacturers of gasoline and gas engines, announce the sale of their plant to F. A. Seitz, who will carry on the business under the old name.

**New Haven, Conn.**—Efforts have been made to organize a company with a capital stock of \$50,000, to manufacture automobiles fitted with a new engine designed by F. C. Billings, of Billings & Spencer.

**Cleveland, O.**—T. C. Whitcomb is enlarging his establishment on Erie street, near Huron. The coming season he will handle the Rambler, Premier and Maxwell lines and may take on a high-powered car.

**Utica, N. Y.**—The Wolcott property on Bleecker street, lately purchased by J. Abrams, will probably be the site of the garage to be erected by the Utica Motor Car Co., which was recently organized. The lot extends from Bleecker to Jay streets.

**Boston, Mass.**—Frank W. Sanborn, of Concord, N. H., will handle the Thomas Flyer for 1906, and the Maine Motor Carriage Co., of Portland, Me., will represent that car throughout its state, C. S. Henshaw, the New England agent, having closed with them recently.

**Cincinnati, O.**—A new automobile garage has been opened. R. C. Crowthers has leased from D. H. Jenike the property at 130 East Ninth street, near Main, and will represent some outside concerns which for some time have desired to secure a Cincinnati agency for pleasure vehicles, trucks and other motor conveyances.

**Boston, Mass.**—George H. Lowe, former manager of the White Sewing Machine Co., has identified himself with the Wayne company of New England. Mr. Lowe will have a third interest in the company, and at the coming meeting will be elected vice-president. The office of the company will remain at 509 Tremont street.

**Richmond, Va.**—The Richmond Mfg. Co. has been organized to take over the entire output and business of the Southern Machine Mfg. Co. The company, while making a specialty of gas, kerosene and gasoline engines, will also do a general foundry and machine business. Among those interested in the new venture are Edgar Allen, Jr., who has been elected president of the company; Abner C. Goode, W. B. DePoy and J. G. Snyder.

**Troy, N. Y.**—The Troy Automobile Exchange has opened a branch for the sale of Wintons in Schenectady, N. Y.

**Worcester, Mass.**—Harrington Auto Station No. 1 has renewed its contract with the Electric Vehicle Co. for Columbia cars in Worcester county for 1906.

**Nashville, Tenn.**—The Southern Automobile Co. has closed a deal with the authorities of Vanderbilt university for a 5-year lease on the Broad Street Amusement Hall property and is preparing to build.

**Lynn, Mass.**—A new punctureless tire is being manufactured by W. J. & J. R. Mitchell and will be known as the Mitchell punctureless tire. This tire combines the principles of the pneumatic and the cushion tire.

**Cleveland, O.**—The new establishment of the Price Brothers Carriage Co. will be complete in every detail, embracing four floors and basement, 40 by 200. Baker electric vehicles will be handled exclusively.

**Bath, N. Y.**—The Kirkham Motor Co., which was organized several months ago to carry on the manufacture of motors for automobiles, has decided to enlarge its plant with a view to an increased output. A committee has been formed to consider and advise upon an increase of the capital stock.



### LATE INCORPORATIONS

**New York City**—The Olborah Co. has been incorporated with a capital stock of \$3,000.

**Cleveland, O.**—The Motor Car Supply Co. has filed articles of incorporation with a capital stock of \$10,000.

**Wilkesbarre, Pa.**—The Matheson Motor Car Co. has been incorporated with a capital stock of \$1,100,000.

**Chicago**—The Kelley-Hunter Co. has been incorporated with a capital stock of \$15,000 to engage in the sale of automobiles.

**Marmaroneck, N. Y.**—The Suburban Automobile and Garage Co. has been incorporated with a capital stock of \$25,000.

**Cleveland, O.**—Among recent incorporations at Columbus was the Paxon Motor Co., of this city, with a capital stock of \$10,000.

**Worcester, Mass.**—Incorporation papers of the Worcester Automobile Club have been passed with a charter list of 125 members.

**Portland, Me.**—The Adams-Sutton Motor Co. has been incorporated to deal in motor vehicles. The capital stock is \$40,000; nothing paid in; par value \$100.

**New York City**—The McGiehan Mfg. Co. has been incorporated with a capital stock of \$20,000. The company will manufacture odometer and automobile supplies.

**Hartford, Conn.**—The Evarts Machine Co. has filed a certificate of incorporation with a capital stock of \$25,000. It will manufacture and deal in machinery, especially engines and motors.

**Charlotte, Mich.**—The Dolson Automobile Co. has been incorporated with a capital stock of \$100,000, taking over the business of John Dolson & Sons. The carriage business has been closed out and hereafter automobiles only will be made.

**Buffalo, N. Y.**—A certificate of incorporation has been filed for the E. R. Thomas Realty Co. with a capital stock of \$1,000. The company will conduct a garage and was formed to take over the title of the property in New York city at Sixty-third street and Broadway recently purchased.

**Seattle, Wash.**—The Broadway Automobile Co., Winton agent in Seattle, will open a branch house in Portland, Ore.

**New Britain, Conn.**—F. A. Law, of Hartford, is the assignor to the Electric Vehicle Co. of a patent for a steering axle for vehicles.

**Pittsburg, Pa.**—The Central Automobile Co., which was lately organized by Edward G. Mooney and Edward Seely, has leased the George McNulty livery stable.

**Detroit, Mich.**—A new plant is in course of construction at 18 Piquette avenue for the North Woodward Garage Co. It is to be a two-story fireproof building.

**Pittsburg, Pa.**—The Central Automobile Co., which was recently organized by Edward G. Mooney, has leased the George McNulty livery stable and awarded a contract for alterations.

**Denver, Col.**—Business has been so good with the Felker Automobile Co., at 1535 Tremont street, that it has been forced to buy the adjoining property, which will be remodeled into a garage.

**Buffalo, N. Y.**—The Kane-Champlin Co. has closed with the Reo company for the exclusive representation of its cars in Buffalo and vicinity. It will occupy rooms at the corner of Elliott and Tupper streets.

**Milwaukee, Wis.**—A second story will be put on the garage of Thomas B. Jeffery & Co. It will cost \$9,000 and the space will be used for the storage of automobiles, the cars being carried up by an elevator.

**Albany, N. Y.**—Instead of building a garage on Pine street, the Albany Garage Co. has bought the property at 28-30 Howard street, with a frontage of 68 feet and an area of 4,800 square feet. It will erect a four-story structure.

**Hartford, Conn.**—The Capitol Foundry Co., manufacturer of automobiles, marine and stationary engine castings, has established its plant here and will be under the personal supervision of F. W. Stickle, president and general manager of the company and formerly superintendent of the Manufacturers' Foundry Co., of Waterbury.

**Cleveland, O.**—The Peerless Motor Car Co. last week exercised the option on some 5 acres of property on which its plants are located and took over the acreage, which is held under 99-year lease. The new buildings which the company is erecting are nearly completed and are partly occupied. It is understood that the company has plans for two more additions in the spring.

**New York City**—The Correspondence School of Automobile Engineering, formerly located at Akron, O., has moved to the Flatiron building, New York. The school has been reorganized on a more substantial basis than ever, and now is incorporated under the laws of the state of New York, with a capital of \$30,000. R. E. Olds has succeeded A. J. Saalfeld as president; R. M. Owen has become treasurer in place of E. R. Adam, and Robert H. Montgomery is secretary, instead of G. S. Rowe. Victor Lougheed will continue as vice-president and general manager.

## Current Automobile Patents



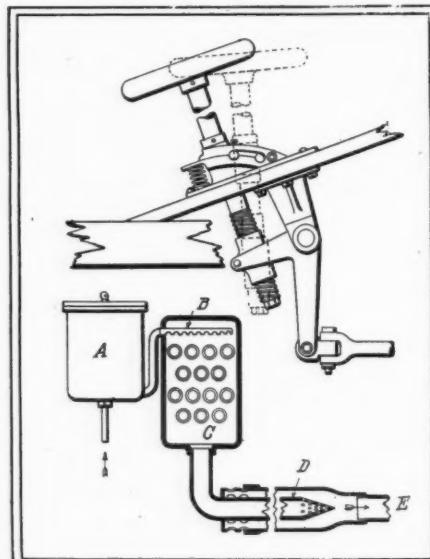
**Tilting Steering Wheel**—No. 804,375, dated November 14; to Herbert H. Buffum, Abington, Mass.—The tilting steering gear referred to in this patent has the ordinary steering wheel with a long screw on the bottom of the column, enclosing which is a nut moved up and down when the steering wheel is turned to the right or left. Pivoted to the nut is a bell crank with its fulcrum bracketed to the under surface of the foot board and the other end of the bell crank connected with a rod running to the tie rod which unites the steering knuckles. For tilting purposes a quadrant is bolted to the upper surface of the foot board, and in this is a plain slot with a semi-circular notch at either end. In this slot works a pin inserted in the steering column and on the upper end of the quadrant is a coil spring pressing upward, so that when the steering gear is in its working position the pin rests in the notch of the slot closest to the driver. To put it in its tilted position the end of the quadrant is depressed by foot pressure so that the pin leaves the notch, when the wheel can be tilted forward through the slot and lodged in the notch at the forward end, where it is retained by the spring tension upon the removal of the foot from the quadrant.

**Oil Carbureter**—No. 804,589, dated November 14; to Giovanni Enrico, Turin, Italy.—The inventor has a carburetor for using heavy oil, the object of the device being for the operation of commercial trucks, using this fluid for fuel. Where heavy oil is used the volatilizing requires additional heat, which the inventor obtains by a series of pipes in the vaporizing chamber C. Through these pipes flows hot exhaust from the muffler pipe. The flow of oil is regulated by a float within the chamber A, oil passing as needed to the chamber C through the pipe B, which has a serrated opening in the top of the vaporizing chamber. Oil entering by this pipe falls around the heating tubes and is vaporized. Being drawn downward through the pipe D by motor suction it is sprayed through a nozzle at the end of this pipe, where it mixes with air and passes by way of the piping E to the cylinders.

**Individual Clutch Gear Box**—No. 804,212, dated November 14; to William R. Cary, Milwaukee, Wis.—This invention is an individual clutch gear box for giving different speeds in automobiles. On the main shaft B are loosely mounted four gears in constant

mesh with four gears on the countershaft A, the latter gears being rigid with the shaft. On the shaft B are two clutches D and E, by which the four gears are locked to the shaft. Each gear is made with a wide overlapping rim, so that the clutch has sufficient expanding surface to work on the gears at either side of it. The expanding device is a friction ring expanded by a V-shaped block, operated through the central rod C within the hollow shaft B. The expanding of any one of the two clutches is through a lever with pinion working in a rack on the rod C.

BUFFUM'S STEERING WHEEL



ENRICO'S OIL CARBURETER

**Change Speed Gear**—No. 804,740, dated November 14; to Columbus K. Lassiter, Schenectady, N. Y.—In this transmission gear the main shaft A extends into the rear of the case and has its end bearing within the shaft C. On shaft A is a sliding gear B, which is eccentrically mounted on the shaft, so that the gear can be meshed with any of the five different gears on the countershaft D, the drive in each case being from the gear B to the countershaft gears and then

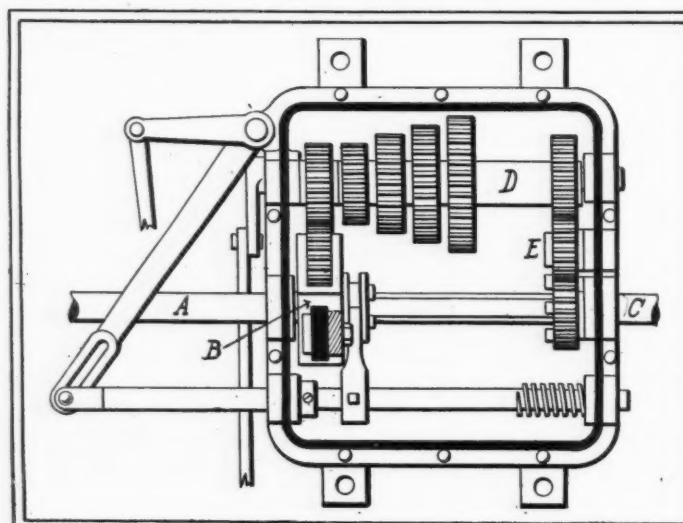
back again to the shaft C through the intermediate gear E. For direct drive the gear B locks with the gear on the end of the shaft C by means of dental face teeth. The turning of the gear B on its eccentric bearing is automatically accomplished as the gear is moved into mesh with any of the countershaft gears, so that the action of changing speed is as simple as in any sliding gear.

**Multi-tube Tire**—No. 804,613, dated November 14; to Frank A. Magowan, Trenton, N. J.—A novelty is presented in this patent in that the pneumatic tire described has an outer tube of the hose-pipe variety, not being split longitudinally between the flanges. Within it is a nest of three air chambers, one within the other, each in turn connected with three separate valves, the valve stems forming a similar nest one within the other. When the tire is first put on the outer air chamber is inflated, leaving the two inner ones resting against that part of the tire adjacent to the rim. In case this tube is punctured the second air chamber is inflated. When the second is punctured the third is brought into service, but with all three punctured repairs must be made.

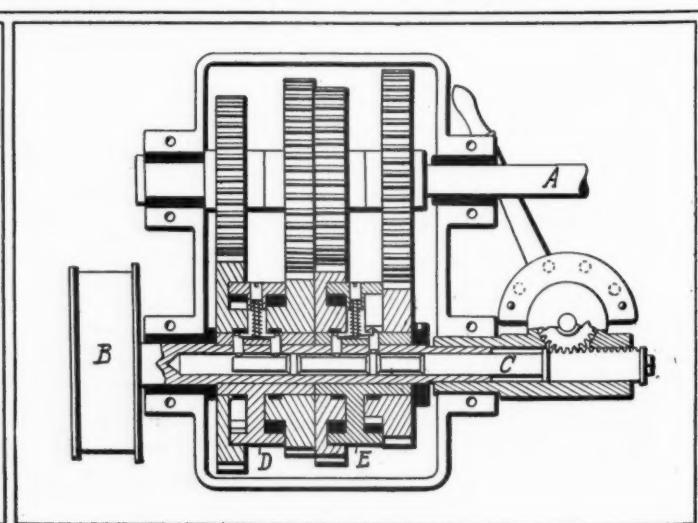
**Semi-Pneumatic Tire**—No. 804,772, dated November 14; to Franklin G. Saylor, Franklin, Mass.—This tire has an oval-shaped cross section with a slightly U-shaped air tube adjacent to the rim, the concaved part of the tube being next to the tread of the tire, but between the tube and the tread is a large core piece made of rubber-coated yarn wound and twisted together. The yarn is a resilient core and also acts as a protector, so that the air tube cannot be punctured.

**Soft Core Tire**—No. 804,369, dated November 14; to William F. Beasley, Plymouth, N. C.—Take a cross section of the ordinary solid rubber tire and cut an oblong opening midway of the tread and base and extending nearly to either side, and in this opening place rubber braces similar to two W's placed end to end, the height of the W's being equal to the height of the opening and the length equal to the opening, so that they form a resilient core, and one has the cross section of this tire. The same inventor has a previously numbered patent for a semi-pneumatic tire in which in the outer casing are four concentric tubes with a circular air chamber, half of which is filled by a soft rubber core, the other half being filled with air.

**Many-tube Tire**—No. 804,701, dated November 14; to Olin M. Bigger, Holt, Cal.—This tire with an outer casing held in place by ordinary clincher rims represents another attempt to produce a puncture-proof tire, or at least one in which, should one puncture occur, the entire air supply is not lost. Within the outer casing are six small inner tubes lying side by side, each with a separate valve. Connecting the six separate valves is a six-branch pipe with one valve at the common part of the pipe, so that to this part an air pump can be attached and the air will pass this valve and through the other valves into each of the separate air tubes. Should one of the air tubes become punctured, five remain intact.



LASSITER'S CHANGE SPEED GEAR



CARY'S INDIVIDUAL CLUTCH GEAR BOX



#### OFFICERS

ISAAC B. POTTER, President.  
Potter Building, New York.  
CHARLES E. DURYEA, First Vice-Pres., Reading, Pa.  
JOHN A. HAWKINS, Second Vice-President, Pittsburg, Pa.  
FRANK A. EGAN, Secretary, 132 Nassau St., New York.  
FREDERICK B. HILL, Treasurer, 32 Binford St., Boston.

National Headquarters  
Vanderbilt Building, New York.

#### OFFICIAL STATIONS

The league is now appointing official stations in all the various cities and towns which contain a substantial number of motor car users, or which are found on lines of popular tours. It is the aim of the league to bestow this official appointment upon only responsible concerns, where repairs, supplies, storage, charging, etc., can be had at fair prices, and when a dealer is found whose methods and prices are beyond complaint his name and address should be sent to the secretary. His business should be encouraged. The list of official stations will be published in convenient form for the use of league members and a list will be sent to each member and to many other motor car users within the next few weeks.

#### THE OTHER KIND

The league is also making a list of those proprietors who make a victim of every tourist and resort to all kinds of dishonest methods to compel him to empty his pocketbook in the settlement of fraudulent and fictitious charges. The number of these frugal buzzards is becoming smaller from month to month, but they are still to be found in every state, and if reports are correct some of them play their game behind the sign boards of pretentious establishments. If the reader has been plucked by one of these pirates, who has charged him the fivefold price for supplies or repairs, let him not hesitate to send the name and address of the offender, with full particulars, to "Secretary American Motor League, Vanderbilt building, New York city." The name of the person sending such information will in no case be disclosed, but investigation will be made and the information kept for the use of other tourists, who may thus escape a similar experience.

#### STATION APPOINTMENTS

The following information relates to the appointment of official stations, and is printed in response to many letters of inquiry:

1—The American Motor League is a national body made up of owners and users of motor cars. It has members in over 700 cities and towns and is the largest organized body of automobilists in the world. Its purpose is to supply its members and others with road books and tour books, maps and other printed information and with lists of the best and most reliable stations, where supplies and repairs can be obtained. Stations properly recommended are entitled to official appointment and these appointments are made from time to time as the growth of the league requires.

2—Each official station is supplied with an official certificate which must be framed and

hung in the office or other conspicuous place in the official station. An enameled sign is also supplied, bearing the official league emblem, and this should be put in a conspicuous place either inside or outside the station, as the proprietor prefers. Appointments of official stations are announced in the official organ of the league—*MOTOR AGE*—and in all road books, tour books and station lists issued by the league for the use of its members. Official stations are also listed for the use of its touring members who ask for information on special routes.

3—All official appointments are permanent. A station appointment is not terminated unless the proprietor violates the official contract. The appointment is therefore a very valuable one and will become more so from year to year.

4—Under the official contract each league member is entitled to a discount of 10 per cent on all bills amounting to \$1 and upwards when dealing with the proprietor of an official station. But this discount is never allowed unless the member claiming the same exhibits to the proprietor an unexpired A. M. L. membership ticket.

5—To partially cover the cost of station signs, certificates, correspondence, extra paging in road books from year to year and office expenses entailed in the maintenance of a station department, each proprietor receiving the appointment is required to pay a nominal fee of \$10 therefor. The proprietor may, if he prefers, send the sum of \$5 as an advanced payment on account; but he will thereafter be required to pay the sum of \$2 annually for a period of five years, making a total of \$15 in all.

6—Blank applications for appointments of official stations will be sent by the secretary on request, but no applications will be acted upon until officially approved.

#### PRINTING FOR STATIONS

Designs are being prepared for a handsome form of letterhead, envelopes and business cards to be used by proprietors of A. M. L. official stations, and in a few days the secretary will lay before these proprietors a very attractive proposition, by the

#### THIS LEAGUE Is Now Collecting Route Information

covering all automobile routes in the important states and will publish road books for motor car users as fast as complete information is received. The A. M. L. is the only organization engaged in this work, and it invites the co-operation of all persons interested. For full information and membership blanks address American Motor League, Vanderbilt Building, New York City.

acceptance of which they can obtain their stationery at a very low price. It is the object of the league to send as many patrons as possible to these official stations, and it is proposed, at the same time, to so enlist the proprietors and managers of these stations in the work of the league that the exchange of benefits will be fully realized on both sides. Many of these proprietors added their names to the membership list and others are doing so from week to week.

#### DANGER SIGNS

The secretary is still sending out danger sign stencils and the league will be glad to supply these to any motor car user, whether league member or not, who will undertake to put up a danger sign or two at any point or points where they are urgently needed. The secretary will send at the same time full printed directions for making and putting up these signs. The cost is very slight and the benefit is likely to be incalculable. In many parts of the country the approach to dangerous railroad crossings should be marked by these signs; in other places the roads are skirted by deep ditches and dangerous gullies, often approached by sudden turns, so that a tourist, unwarmed by the friendly sign, is placed in a condition of extreme peril before he is aware of it. Many lives might have been saved and painful, dangerous and expensive accidents averted, had these signs been used more generally within the last 3 years.

#### GOOD ROADS

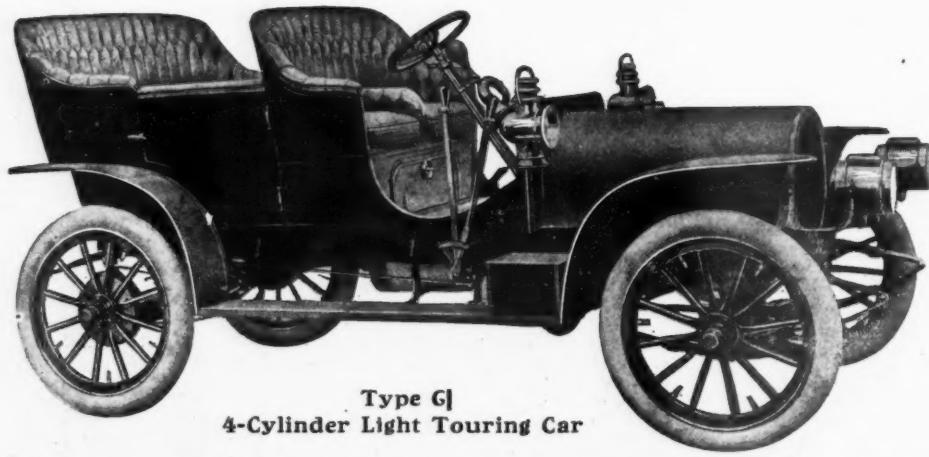
The league is about to send out a little book on the practicable improvement of country roads. It is the second of the series and is a companion volume to the little book on "Macadam Roads," of which an edition of 5,000 copies was sent out last year. "Country Roads" is a convenient little book of sixty-four pages, fully illustrated, and will do much to educate the people in the practical ways of improving country roads.

#### LEAGUE MEMBERSHIP

There is no initiation fee. The dues are nominal—\$2 a year for each member. The membership roll is open to all automobilists of good character and to all who believe in the development of automobiling. It is such people that the league is desirous of securing for members and every effort is being made in this direction. The secretary will send full printed information on receipt of postal card request. Address American Motor League, Vanderbilt building, New York city.



# FRANKLIN



Type G  
4-Cylinder Light Touring Car

Air-cooled. Shaft drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Force-feed oiler on the dash. Side doors. 88-inch wheel base. 4 or 5 passengers. 35 miles an hour. 12 "Franklin horse-power." 1400 pounds.  
**\$1800** f. o. b. Syracuse. Full head- and tail-light equipment.

## A Talk to Franklin Dealers

How are we to sell a 12 "Franklin horse-power" car for \$1800 when people can buy for \$1700 a car rated at 20 horse-power?

The answer is: Forget power rating. Show what the car will do.

Show that our car does all the other one does and more, and that ours does it easier and cheaper.

Show that power-rating taken by itself means nothing at all. It is only a name. What does a man care whether his car is named Jenny or Susy, so long as it does the work? What will the car do? That's the whole question. Stick to that.

You know and we know that our \$1800 G car does more than any other car at anywhere near the price. That it does more than the average \$2500 car. That it carries as many passengers and carries them faster, safer and more comfortably.

We both know that there are cars costing \$3,000, and rated at all kinds of power, that cannot keep up with our G car, particularly on hills, and that haven't strength and durability.

How can we make these facts plain to others?

This is how:—Tell the truth; but tell the *whole* truth.

State only facts; but state them **all**.

If you say to a customer that a Franklin Car is only 12 "horse-power," you do not tell all the truth.

You should tell him that it is 12 "**Franklin**" horse-power." You should explain exactly how and why 12 "Franklin horse-power" does as much as 20 horse-power in any other car; and more than in most of them.

If you say any less you are cheating yourself. You are doing injustice to the car. You are not giving your customer a square deal.

He wants a car that will do certain things. You can give it to him and save him money. It is up to you to show him this fact so plainly that he can't miss it or doubt it.

You benefit him as truly as yourself.

The "horse-power" myth is rapidly losing its hold on intelligent motorists.

Everybody knows that you can buy 20 cart-horses for less than one "Dan Patch." The difference is what Dan Patch will do.

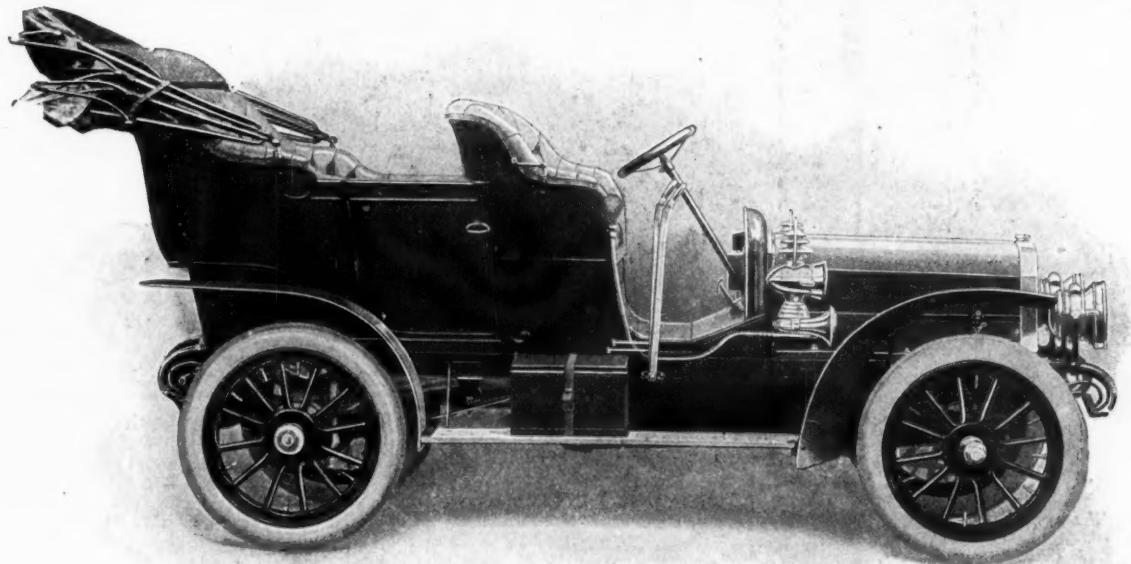
You can buy a 20 horse-power steam roller for \$1500, but it wouldn't make a hill-climber. Don't talk "horse-power." Don't *think* it.

Think and talk "Franklin horse-power;" and what it will do.

**4 Models for 1906 ... Send for the book**

**H. H. FRANKLIN MFG. CO., SYRACUSE, N. Y., M. A. L. A. M.**

# WINTON



## WHY SOME BEARINGS ARE BAD

There is a big difference between bearings that are ground to a smooth-as-glass finish and bearings that are merely "machined" and not ground.

No. 1 illustrates the surfaces of brass and steel in a not ground bearing. First, let us understand that the brass part of a bearing is never ground. The steel part should be, but often is not ground. Notice the ragged looking surfaces! Magnify a not ground bearing before it is used and you'll see just such ragged roughness as this.

No. 2 shows what happens after this bearing has been run a while. Brass is soft metal; Steel is hard. Therefore, the rough edges of the not ground steel cut into the brass until all the crevices in the steel are filled with brass. Then that bearing is no longer a Steel-against-Brass bearing, but becomes Brass-against-Brass, soft metal against soft metal; thereby creating the greatest possible volume of Friction, Heat and Wear. There couldn't be a worse bearing. Ask any mechanical engineer.

Now let us examine a bearing made of ground steel and not-ground brass.

No. 3 shows this bearing before use. Note that the steel is perfectly smooth and has no crevices to fill up with brass. But the brass is just as ragged as in No. 1.

No. 4 shows what happens to a ground steel bearing when used. The smooth, hard steel does not dig into the brass, but instead presses down the rough spots in the brass until the brass becomes as perfectly smooth as the steel itself. Just the way an iron in the laundry smooths out the rough spots in a freshly washed collar and puts a mirror finish on it—with no damage to the iron and a great improvement to the collar.

All steel bearings in the new Winton Model K are ground. That's why Model K glides along without ruinous friction and consumes so marvelously little lubricating oil.

Friction means wear and expense. Avoid both by using a Winton Model K.



1



2



3



4

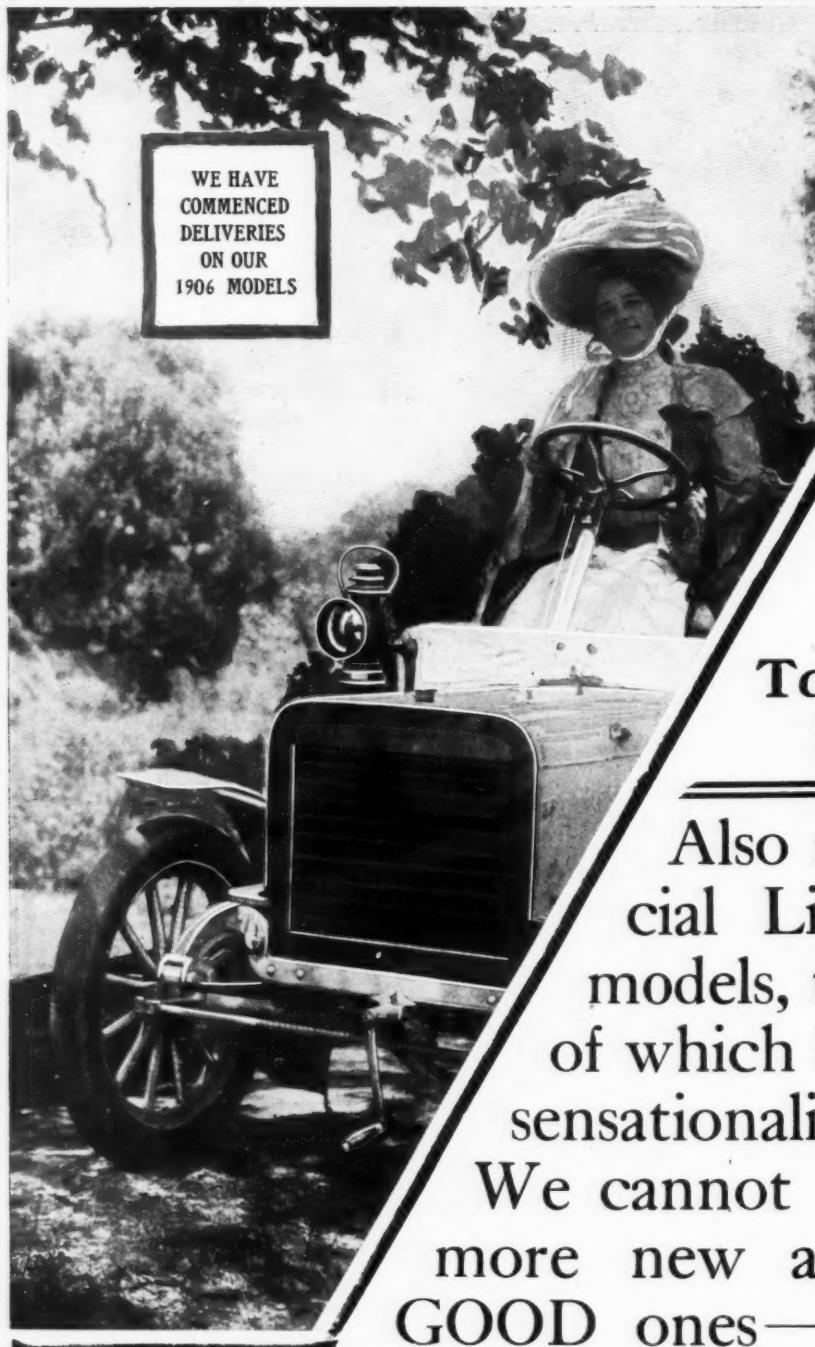
THE SMOOTH RUNNING WINTON MODEL K—Four cylinder, vertical, water-cooled. Thirty H. P. or better. Superb Twin Springs. Shooting oiler. Individual clutch transmission. Best of Ignition and Carburation systems. The magnificent Winton Pneumatic Governor. \$2,500 f.o.b. Cleveland.

The typical American motor car—Americanized Encyclopaedia Britannica.

**The Winton Motor Carriage Co.  
CLEVELAND, O. Member  
U. S. A.**

CATALOG NO. 2 IS READY

# MITCHELL



"The car you ought to have, at the price you ought to pay."

**Our 1906 Line includes the Following Models:**

### Runabout

Model 2 B, 2-cylinder 8-10 horse-power, vertical motor, mounted in front . . . \$750

### Touring Car

Model 4 B, 4-cylinder 18-20 horse-power . . . . . \$1500

Also a tip top Commercial Line and two new models, the announcement of which at an early date will sensationalize the trade.

We cannot take care of many more new agents, but a few GOOD ones—YES.

WRITE

**MITCHELL MOTOR CAR CO.**  
RACINE, WIS.

*MEMBERS AMERICAN MOTOR CAR MANUFACTURERS' ASSOCIATION, CHICAGO*

## WHICH WOULD YOU RATHER READ ABOUT?

**Q.** There has been quite a little discussion going on lately as to whether air-cooled cars do or don't require more cylinder oil than water-cooled cars. We also note with interest the evident pride with which the announcement is made every once in a while, that someone or other carried four passengers a hundred miles for a microscopic fraction of a cent less per passenger per mile than other cars usually cost.

**Q.** If a customer was to ask us for exact figures as to how much per passenger mile it costs to run the Stevens-Duryea for oil and gasoline, we doubt if there's a man at the factory who would know—we'd have to guess at it, for at the prevailing prices of gasoline and oil, we think life is too short to figure out such hair-splitting economies.

**Q.** Our guess would be that the Stevens-Duryea will average 15 miles to the gallon of gasoline in the hands of the average owner and a factory expert might do 25 miles to the gallon. The Stevens-Duryea will run 200 or 300 or perhaps 400 miles per gallon of oil. But if the Stevens-Duryea should run 50 miles per gallon of gasoline and some other car but 10 miles per gallon, the saving would be only \$40.00 in 5,000 miles, which is a year's riding for most people. And if we use a gallon of 50-cent cylinder oil every 100 miles, or if 'twas only a pint, the saving would amount to only \$22.00 in a year.

**Q.** But let us suggest some good, real, live topics to talk about, like the following:

**Q.** How much will my tire bill be for 5,000 miles? will it be \$5.00, \$500.00 or \$1,000.00???

**Q.** How much will my repair bill be for 5,000 miles? will it be \$10.00 or \$100.00 or \$1,000.00???

**Q.** How much will it cost to overhaul my car after it has run 5,000 miles? will it be \$50.00 or \$500.00???

**Q.** How much will my car have depreciated by the end of the year? will I lose \$500.00 or \$1,000.00 or \$2,000.00???

**Q.** Will the car I buy in 1906 be dropped from the market at the end of the year so that my car will be out of date, and so that I can't get repair parts if I want to run it a second year?

**Q.** Will my car be just as quiet, just as smooth, just as free from rattle and noise after 5,000 miles as it was when new?

**Q.** Will it have just as much power?

**Q.** Now the answers to these questions are not expressed in fractions of cents "per passenger mile." They deal with hundreds or even thousands of big, round dollars—and the man who wants to secure economy that is really worth while, can get accurate, precise, trustworthy information from us as to what the Stevens-Duryea has cost on each of these items. Furthermore, we are not giving you this data about a car that we're going to stop making at the end of the season, but on the car you buy for next year. Other manufacturers who change models every year, can tell you what the car they are abandoning has done,—but this information doesn't do you a particle of good. If you ask for information about the car they expect to sell you, the information you get in reply is based on what about one or two trial cars of the "new" model have done for two or three months in the hands of factory experts. Wouldn't you rather know what 350 have done, in all parts of the United States, in the hands of all sorts of drivers?

**N e x t   W e e k   W e   W i l l   T e l l   Y o u**

**J. STEVENS ARMS & TOOL CO.**

Makers of the Twentieth Century Hustler

705 Main Street, CHICOPEE FALLS, MASS.

Members Association Licensed Automobile Manufacturers



## One of Our Three New Models

**MOTOR**—4-Cylinder—26-28-H.P. **FRONT AXLE**—Solid-forged.

**DRIVE**—Shaft Bevel Gear.

**FRAME**—Pressed Steel.

**WHEELS**—32 x 4.

**WHEEL BASE**—101 inches.

**TRANSMISSION**—Sliding Gear.

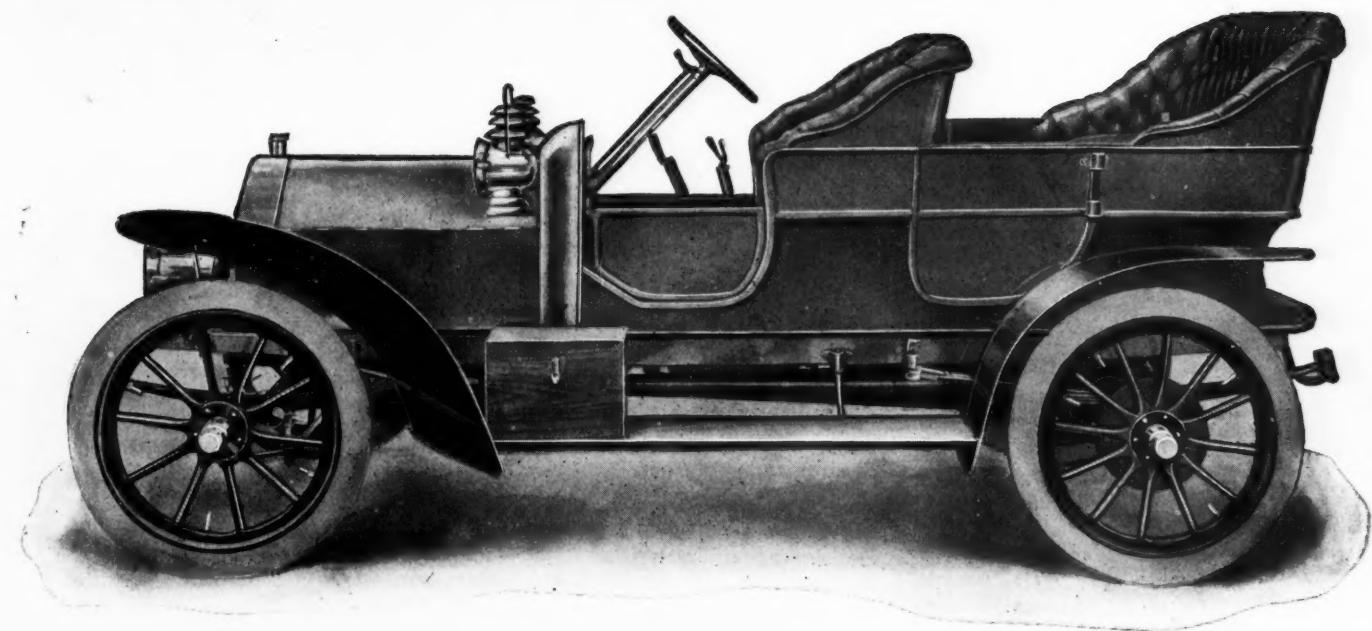
**GROUND PARTS**—All Cylinders, Pistons, Piston Ring, Crank Shaft, Valves, Universal Coupling and Transmission Shafts.

**EQUIPMENT**—Five Lamps, Horn, Tools and Storage Battery.

We also have an 18-H.P., Two-cylinder Touring Car with Detachable Side door Tonneau, listing at \$1,100—and a Runabout 12-H.P. at \$800.

Write us for complete details and agency proposition.

**C. H. BLOMSTROM MOTOR CO., Detroit, Mich.**



**The Oldsmobile Palace Touring Car, Model "S," price \$2250, detailed description of which appeared in this publication last week, is notable equally for its carefully proportioned body, its strong, simple and well-balanced chassis and the wonderful attention to detail evident in every part of its construction.** The car is low hung, yet has plenty of clearance, and the long wheel base of 106 inches gives a rangy appearance, which is most attractive. The four-cylinder vertical water-cooled motor is of the most thoroughly approved type, and easily develops from 24 to 26 h. p. The tendency to create dust is lessened by the construction of the dust pan and longitudinal arrangement of all parts hung beneath the car, all of which is conducive to general comfort in touring. The transmission is sliding gear, three speeds forward and reverse. The control is of the selective type, the changes being made with a single lever. The brakes are very strong and positive in action. The transmission brake is operated by a foot lever, while the rear hub brakes are controlled by a hand lever. Complete equipment, consisting of two acetylene headlights and generator, two oil lamps and one oil tail lamp, together with tools, etc., is furnished with this car.

## OLDS MOTOR WORKS Lansing, Mich., U. S. A.

Member A. L. A. M.

CUT COUPON HERE

CATALOGUE COUPON

**OLDS MOTOR WORKS**  
LANSING, MICH.

Kindly send me information regarding cars checked.  
I am interested.

Model B....

Delivery Cars....

Model S....

Passenger

Model L....

Traffic Cars....

Name \_\_\_\_\_

Address \_\_\_\_\_

CUT COUPON HERE

CUT COUPON HERE

CALENDAR COUPON

**OLDS MOTOR WORKS**  
LANSING, MICH.

Enclosed find 10 cents, for which send your Art  
Calendar (free from advertising and suitable for fram-  
ing) for 1906. Design by George Gibbs. 12

Name \_\_\_\_\_

Address \_\_\_\_\_

CUT COUPON HERE

CUT COUPON HERE

MOTOR TALK COUPON

**OLDS MOTOR WORKS**  
LANSING, MICH.

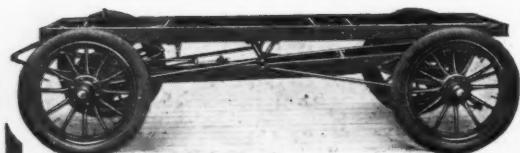
Enclosed find 25 cents, for which have **MOTOR  
TALK**, a magazine devoted to automobiling, sent to  
me for 1 year. 12

Name \_\_\_\_\_

Address \_\_\_\_\_

# THE MARMON

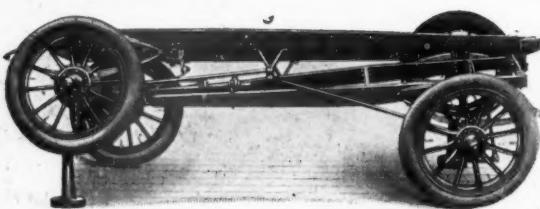
"A Mechanical Masterpiece"



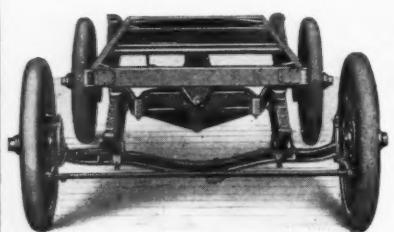
Side View—Normal Position.

**No Jolts  
for Passengers**

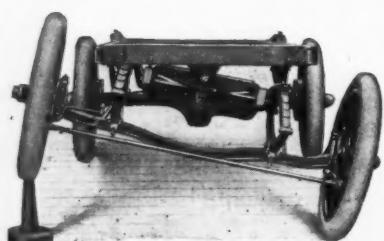
**No Strains  
for Mechanism**



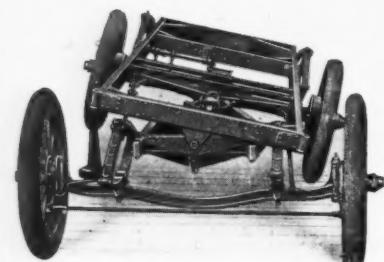
One Front Wheel and Opposite Rear Wheel Each Raised Over a Foot. Not a Strain Anywhere.



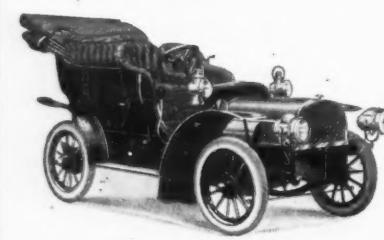
Front View—Normal Position.



Front Wheel Raised Over a Foot, Body Level.

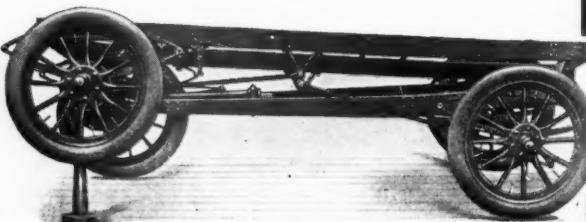


Rear Wheel Raised Over a Foot, Lower Frame Level.



Side View—Front Wheel Raised Over a Foot.

**Rides  
Like  
a  
Sail  
Boat**



Side View—Rear Wheel Raised Over a Foot.

THESE pictures afford a clear view of the mechanical beauty of a car that is in all ways superb.

They show how easily the Marmon meets and overcomes the roughest road conditions, through its remarkable flexibility.

The first effect realized is the freedom from jolts and vibrations—a very luxury of motion over any and all roads, unknown in *any other car*.

More important still, no matter how rough the road, the running gear adjusts itself naturally to the ruts and bumps without subjecting the mechanism to binding or twisting strains. This is true of *no other car* regardless of price or prestige.

To determine how any other car would act under similar test, nail three legs of a chair securely to the floor and try to lift the remaining leg. Make some slight allowance in favor of the car because of its springs, and then charge against it the costly mechanism it carries and the great variety of roads over which it must travel, often at high speed. The entire mechanism is thus racked by twisting strains and ruinous friction in any such rigid construction, and not the least of the sufferers are the tires and the passengers.

The Marmon elasticity is supplemented by full elliptic springs but is primarily due to a patented exclusive feature.

### Double Three-Point Suspension

Luxurious solid cast aluminum body on one frame, power plant on another frame, *each frame* suspended on three *pivotal* points. Raising or lowering one wheel does not affect the other wheels. No matter which wheels are raised, no matter how the two frames are tilted, the entire power plant and rear axle are *always* in perfect alignment. Straight and rigid shaft drive (without any sort of flexible couplings) delivers a greater percentage of power to the wheels than is possible in any other scheme of transmission.

The Marmon oiling system (fully patented) has no equal. Starting and stopping with the engine, a constant and uniform flow of oil is forced through the hollow crank shaft directly into all the main engine bearings, crank and piston pin bearings. Simple, unfailing, very economical; has no adjustments. Spur planetary transmission (clutches included) running in oil.

Four cylinder motor; perfectly air-cooled. Spark and throttle control on steering wheel.

The Marmon is stylish, strikingly handsome and very quiet. It is "A Mechanical Masterpiece" in whole and in every part, replete with distinctive features that appeal instantly and forcefully to all who seek a really superior car.

Full description in Booklet No. 1. Write for it.

**NORDYKE & MARMON CO. Established 1851 Indianapolis, Ind.**

Members American Motor Car Manufacturers' Association

# Locomobile

EASILY THE BEST BUILT CAR IN AMERICA

We announce two new styles for 1906, a powerful four-cylinder touring car, price \$3,000, and a larger car at \$5,000, both with complete touring equipment. These models are almost identical in design, contain the same carefully selected material, and are constructed with equal care throughout,—the result of years of careful and consistent manufacture of the standard type of four-cylinder touring car.

Locomobiles are fully equal in mechanical details and running qualities to the best imported cars, but are especially designed for American roads.



## SPECIFICATIONS OF 1906 MODELS

### TYPE "E" LOCOMOBILE, 15-20 H. P.

**Price**, \$3,000, ready for touring.  
**Equipment**, 5 brass lamps, horn, tire, carrier, set of tools, extra parts, jack, lock box for tools and lubricants.  
**Body**, double side entrance, seating 5; fitted with top irons; color and striping optional; top and luggage carrier extra.  
**Motor**, 4-cylinder, 3 $\frac{3}{4}$ " bore, 4 $\frac{1}{2}$ " stroke.  
**Lubricator**, large mechanical lubricator.  
**Carburetor**, automatic, with balanced throttle valve.  
**Governor**, centrifugal type, prompt and positive in action.  
**Ignition**, make and break with iridium contacts.  
**Magneto**, low tension, our own design and manufacture.  
**Aluminum Pan**, placed underneath the machinery.  
**Clutch**, cone type with ample surface.  
**Transmission**, 3 forward speeds and reverse.  
**Drive**, double side chains.  
**Universal Joint**, double universal joint between clutch and transmission.  
**Running Brake**, double acting type, large and powerful, metal to metal surfaces.  
**Emergency Brakes**, internal expansion type, large and powerful, metal to metal surfaces.  
**Combined Brake and Sprocket Drum**, bolted to each rear wheel spoke.  
**Axles**, "I" section hand-welded axles.  
**Tires**, 32"x4" on all four wheels.  
**Wheel Base**, 93".  
**Weight**, about 2,000 lbs.

### TYPE "H" LOCOMOBILE, 30-35 H. P.

**Price**, \$5,000, ready for touring.  
**Equipment**, 5 brass lamps, horn, tire, carrier, set of tools, extra parts, jack, lock box for tools and lubricants.  
**Body**, double side entrance, seating 5; fitted with top irons; color and striping optional; top and luggage carrier extra.  
**Motor**, 4-cylinder, 4 $\frac{1}{2}$ " bore, 5 $\frac{1}{2}$ " stroke.  
**Lubricator**, large mechanical lubricator.  
**Carburetor**, automatic, with balanced throttle valve.  
**Governor**, centrifugal type, prompt and positive in action.  
**Ignition**, make and break with iridium contacts.  
**Magneto**, low tension, our own design and manufacture.  
**Aluminum Pan**, placed underneath the machinery.  
**Clutch**, cone type with ample surface.  
**Transmission**, 3 forward speeds and reverse.  
**Drive**, double side chains.  
**Universal Joint**, double universal joint between clutch and transmission.  
**Running Brake**, double acting type, large and powerful, metal to metal surfaces.  
**Emergency Brakes**, internal expansion type, large and powerful, metal to metal surfaces.  
**Combined Brake and Sprocket Drum**, bolted to each rear wheel spoke.  
**Axles**, "I" section hand-welded axles.  
**Tires**, 34"x4 $\frac{1}{2}$ ".  
**Wheel Base**, 106".  
**Weight**, about 2,900 lbs.

THE LOCOMOBILE CO. OF AMERICA, Bridgeport, Conn.

NEW YORK, 76th St. and Broadway.  
 PHILADELPHIA, 249 N. Broad St.

Member Association Licensed Automobile  
Manufacturers.

BOSTON, 15 Berkeley St.  
 CHICAGO, 1354 Michigan Ave.

# The Business Man's Train

between

## CHICAGO and NEW YORK

is

# "The Pennsylvania Special"

## Pioneer 18-Hour Train

which runs every day over

## The Pennsylvania-New York Short Line

Leaving Chicago, Union Station, 2:45 p. m., arriving New York 9:45 next morning. Returning leave New York 3:55 p. m., arrive Chicago 8:55 a. m. Train is equipped with Vestibuled and Electric Lighted Library, Smoking, Dining, Sleeping and Compartment Observation Cars.

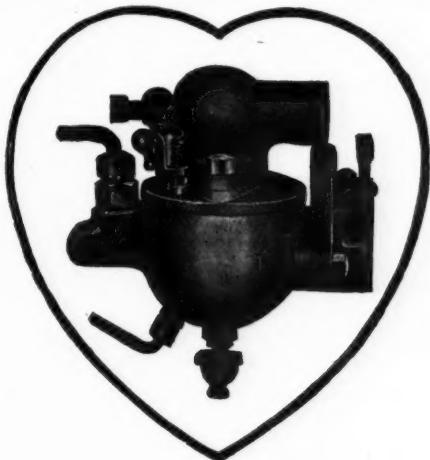
## Seven Other Daily Trains Chicago to New York

For Time of trains Pittsburgh, Baltimore, Washington and Philadelphia, call at City Ticket Office, 248 South Clark Street, or address

G. G. BELTZHOOVER  
District Passenger Agent  
Chicago, Ill.

C. L. KIMBALL  
Asst. General Passenger Agent  
Chicago, Ill.

THE HEART OF THE AUTOMOBILE



## The Schebler Carburetor

---

### *Standard of the World*

1,094 3-16 miles in twenty-four hours continuous running on a circular track; 1,000 miles in 21:58:00 4-5 continuous running on a circular track, breaking all world's records by 1:35:19 1-5.

This is the world's record travels of a National car fitted with a SCHEBLER carburetor at the Indianapolis Fair Ground Track, November 16th to 17th. Hundreds of miles were reeled off with scarcely a variation of a second in the time of each.

Is it any wonder that eighty-three of the largest marine and automobile engine builders in the United States and Canada are equipping their motors with the SCHEBLER?

A carburetor that gives a perfect mixture at all engine speeds, regardless of weather conditions, is truly "*The Heart of the Automobile.*"

**WHEELER & SCHEBLER, Mfrs.**  
INDIANAPOLIS, IND., U. S. A.

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#### Agencies in all the Principal Cities of the World

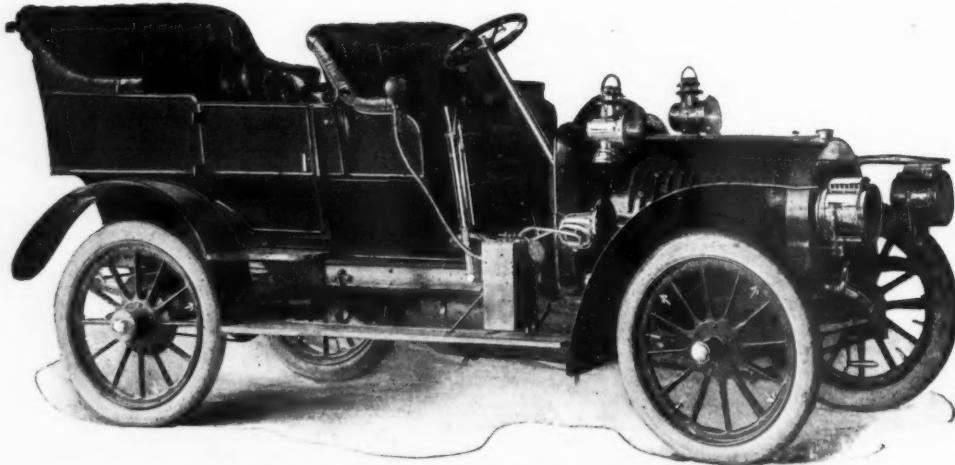
P. J. Dasey.....	431 Wabash Ave., Chicago, Ill., Factory Representative
Excelsior Supply Co.....	Chicago, Ill.
Automobile Supply Co.....	Chicago, Ill.
Beckley-Ralston Co.....	Chicago, Ill.
E. J. Edmond.....	44th St. and 6th Ave., New York City
E. B. Belcher.....	26 Green St., Malden, Mass.
Jos. Brassard.....	Central Falls, R. I.
Ellsworth Foundry & Machine Shop.....	Ellsworth, Me.
National Electric Supply Co.....	Washington, D. C.
Smith Electrical Engineering Co.....	Watertown, N. Y.
The Wallace Bros. Co.....	Norfolk, Va.

N. Philadelphia Auto Station.....	3425 N. Broad St., Philadelphia, Pa.
F. C. Bowlus.....	332 Baronne St., New Orleans, La.
Consolidated Supply Co.....	Denver, Colo.
Chanslor & Lyon Motor Supply Co.....	503 Golden Gate Ave., San Francisco, Cal.
Los Angeles Auto Co.....	Los Angeles, Cal.
McCulloch & Boswell.....	Winnipeg, Man.
Wilson & Co.....	Ottawa, Ontario, Can.
Canada Cycle & Motor Co.....	Toronto Junction, Can.
Turnbull & Jones.....	Dunedin, N. Z.
Geo. Nelli & Co.....	38 Fenchurch St., London, England

# THE 1906 MODEL B *Rainier*

**"THE PULLMAN OF AUTOMOBILES"**

has arrived and is now on exhibition at our showrooms. You will do yourself an injustice if you decide on your car without investigating this triumphant American production. Equal to any car, built in any country at any price. Make and break spark. Sims-Bosch Magneto. Bevel gear drive. Continental Tires. Aluminum bodies.



MODEL B RAINIER, 30-35 H. P. PRICE, \$4,000.

Do you realize fully the great superiority of the "make and break" over the jump spark? Do you know that it does away entirely with the coil, the commutator, the batteries, and the spark plugs, and substitutes for all these a simple hammer and anvil, mechanically operated, which cannot get out of order?

Do you know that 90 per cent. of the foreign makers have already adopted this method? Do you know that the RAINIER car is guaranteed not to cost one dollar for repairs within one year of purchase, unless you have an accident, and that it stands alone in this respect?

*Learn all about it in our new Bulletin just issued.*

**THE RAINIER COMPANY, Broadway and 50th Street, New York**

# ANNOUNCEMENT

## CORBIN CARS FOR 1906

### **Model E, Light Touring Car, Price \$2000**

Four cylinder vertical, air cooled engine 24 H. P. mechanically operated valves. Jump spark ignition with synchronized system of distribution of the high tension current. Positive force feed lubrication. Sliding gear transmission, selective system having three speeds forward and reverse. Pressed steel frame and steel pan construction. Bevel gear drive rear axle of the floating type. Front axle I beam section drop forged in one piece. New type worm and sector steering gear. Internal and external brakes on rear hubs. Body of graceful design, side entrance of the latest French type, roomy in proportions and luxurious in appointment. Wheel base 100 inches. Extra long springs of special design and great flexibility. Wheels 32 x 3½ inches. Weight 1800 pounds. Speed up to 45 miles per hour. Two gas lamps, generator, three oil lamps, horn and full complement of tools constitute the equipment.

---

### **Model G, High Powered Runabout, Price \$1800**

The specifications of this model de luxe two passenger car are identical with the Model E with the exception of wheel base, 93 inches. Body latest French type for two passengers, divided front seats. Long, graceful tail box. The metal parts are lightened wherever compatible with safety. Speed 50 miles per hour.

---

### **Annular Ball Bearings Are Employed Throughout**

Agencies in certain desirable territory are still open. Representative dealers are requested to communicate with us promptly to insure early delivery of cars.

## **Corbin Motor Vehicle Corporation**

MAKERS OF CORBIN AIR COOLED MOTOR CARS : NEW BRITAIN, CONN.

4 West 38th St., New York. 43 Columbus Ave., Boston. 1406 Michigan Ave., Chicago. 115 East 7th St., Cincinnati

# WAY'S MUFFLER

PAT. NOV. 16 and 30, 1897

WHICH WAY  
DO YOU WANT IT?



An ideal garment for men, women and children.

Most dealers carry Way's Muffler in stock.

If yours don't, write to us direct.

THIS IS THE WAY  
YOU WANT IT



## Either Protect Your Throat

from draughts, discomfort, cold, illness and pneumonia with Way's Muffler—or stay indoors.

## WAY'S Muffler

is a perfect throat and chest protector.

Comes with or without ear tabs as preferred.

Especially adaptable for winter motoring.

As easy to put on as your hat.

### The Way Muffler Co.

MANUFACTURERS

Cor. 23d and Arch Streets J. HOWARD WAY, Prop.  
PHILADELPHIA, PA.

Chicago, 920 Medinah Temple  
Pittsburg, 9th and Liberty Sts. New York, 43 Leonard St.  
London, Canada, Hiscox Bldg. Cincinnati, 21 W. 3rd St.

MOTOR AGE



## SEND FOR THIS BOOKLET

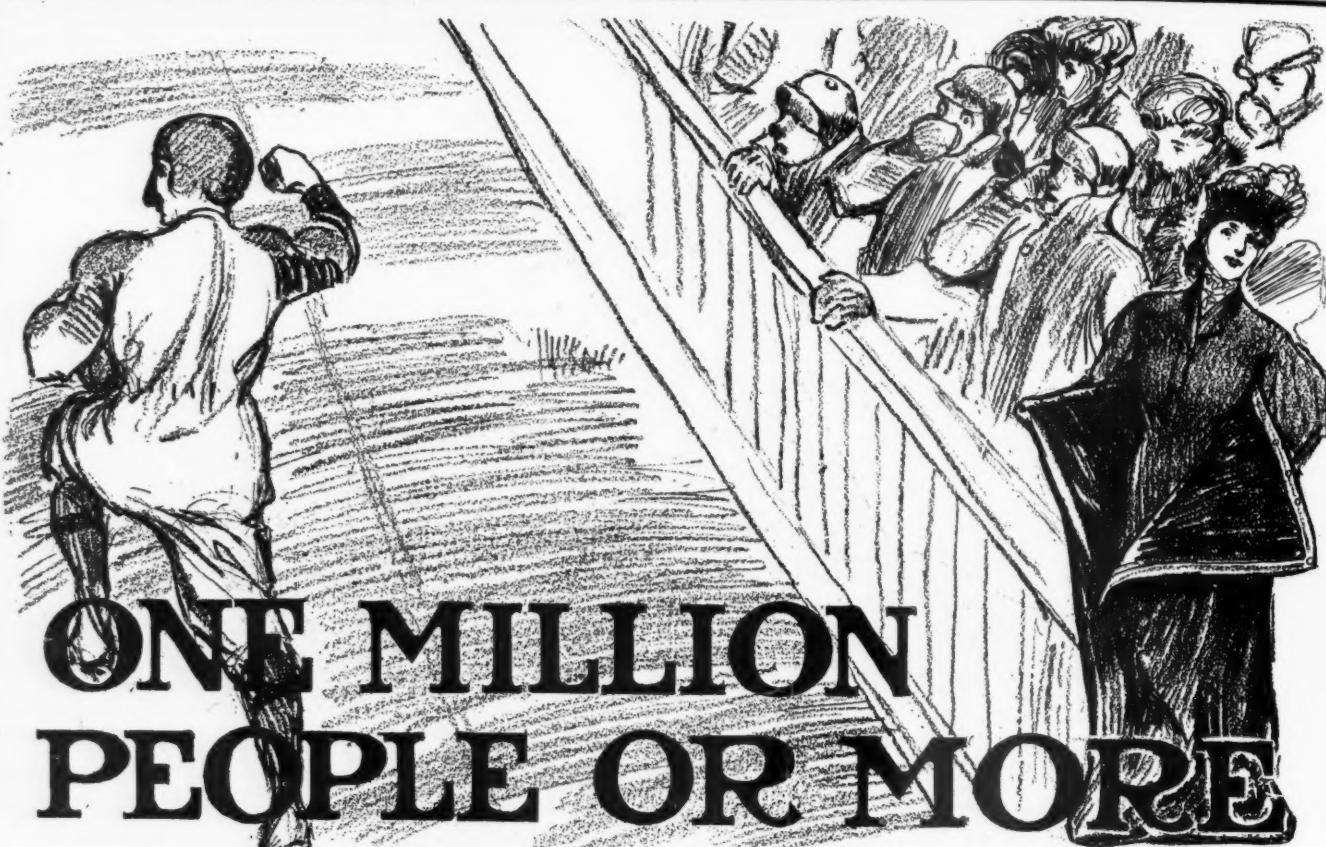
of Peerless 1906 Information, if you intend to buy a 1906 car—or if you are interested in automobiles—for it contains one of the most complete mechanical descriptions of an automobile ever printed. It not only tells just what are the famous Peerless mechanical principles, but it also explains why we have found them best.

*A postal will bring it—Send today*

**THE PEERLESS MOTOR CAR CO.**

802 Quincy Street, Cleveland, Ohio

Member A. L. A. M.



# ONE MILLION PEOPLE OR MORE



will suffer from cold feet and benumbed limbs during the progress of the many football games throughout the country on Thanksgiving Day, this year.

Everybody who has ever witnessed a gridiron battle in other years will recall that one unpleasant feature of the afternoon's sport.

## DAVIS ROBES OF COMFORT SOLVE THE PROBLEM ... ABSOLUTELY AND FOREVER

Imagine the pleasure of watching the game, snugly encased in a luxurious, soft and roomy, air-tight, plush-lined Robe of Comfort. No cold can possibly attack your feet or limbs. It makes you feel as Warm as Toast.

How many people will prove the wisdom which experience is supposed to bring by ordering at once a Davis Robe of Comfort, and thus be prepared not only for such outdoor occasions as football games, but for winter automobiling, carriage riding and sleighing as well, for many years to come.

Davis Robes of Comfort are patented. You can get them from us only, but there are Three Ways to Obtain a Davis Robe, any one of which is entirely satisfactory to us. Read them:

- 1st. When cash is sent with order, WE PREPAY EXPRESS CHARGES.
- 2d. We send C. O. D. with privilege of examination before accepting.
- 3d. We send on approval to responsible people and pay return charges if not satisfactory.

### PRICE

Standard Robe, \$10.00 Baby Bear, fur front (elaborate) \$20.00 Arctic Over-Pants, \$10.00

NOTE.—We cover this robe, on order, with seal skin, lynx, otter or any kind of fur desired. Prices on application.

Illustrated Booklet and testimonials of prominent business men from both city and country everywhere free on request.

**DAVIS ROBE CO.** 1327 CHAMPLAIN BLDG.  
CHICAGO, ILL.

### REFERENCES:

Merchants' Loan & Trust Co., Marshall Field & Co., any Express Company or Motor Age

**ORDER TODAY**—Goods shipped same day order is received

**TO CHICAGOANS:** Phone us, Central 2510,  
and we'll send it over to your Home or Office

MOTOR AGE says: "It is Perfectly Safe to Remit in Advance to the  
Davis Robe Co. Their goods are exactly as represented."

We also manufacture a Bifurcated Robe of Comfort or

### ARCTIC OVER-PANTS

with feet. They enable the wearer to leave car at will and walk about in the mud, slush or snow.

They keep the shoes and clothes clean and are GREAT.

### FOR THE MAN AT THE WHEEL

Made of Best Rubber Drill or Mackintosh; lined with Heavy Plush, Waterproof calfskin leather feet.

In ordering send inside seam and waist measure over clothing.

**Price \$10**

### This is The DAVIS ROBE OF COMFORT

It is exactly what you want if Comfort interests you. Plenty of room for the feet and legs.

Made of Finest Pure Rubber Drill or Best Grade of Mackintosh, entirely lined with heavy imported dark green Plush. Wearing portion under feet covered with calfskin.

Fastens with Heavy Large Glove Clasps. Adjustable to any size waist. Can be carried on the arm when not in use. Light in weight and not cumbersome.

Expressed to ANY ADDRESS on same day order is received.

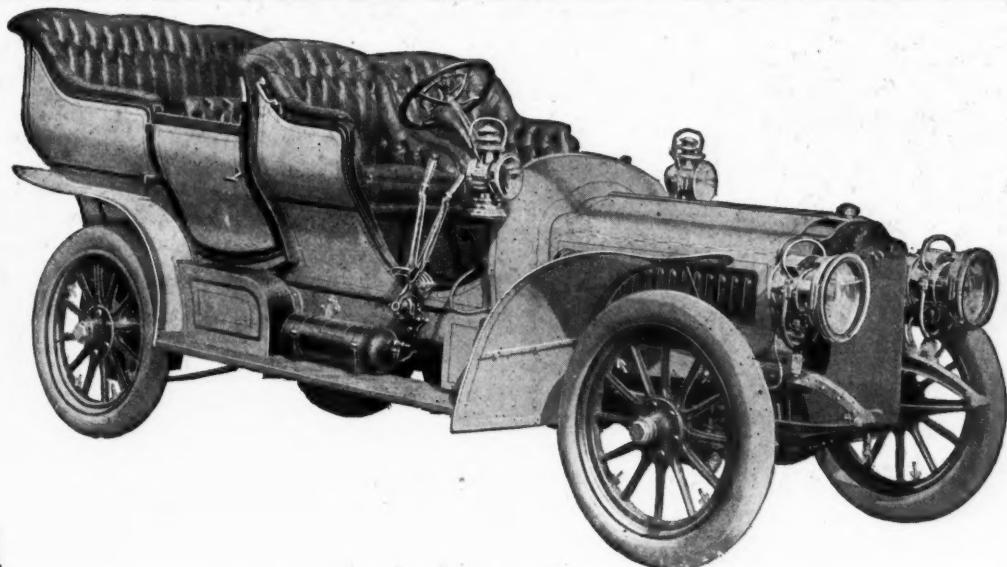
It will keep you WARM in the coldest weather.

### WE GUARANTEE IT

Money refunded if for any reason goods are not satisfactory.

# The New Thomas

**Greatly Exceeds My Most Sanguine Expectations  
Experts Say It Is a Wonder**



**N**O customer is so critical or hard to please as the manufacturer, who, regardless of cost, absolutely determines to do his utmost to build the best car in the world.

But, when an ordinary Stock Touring Car, without special preparation or intention, runs sixty miles an hour on the level, and climbs a 10 per cent grade on the high speed at forty miles per hour, within an hour after it first leaves the shops, it is something that not one car in a thousand will do.

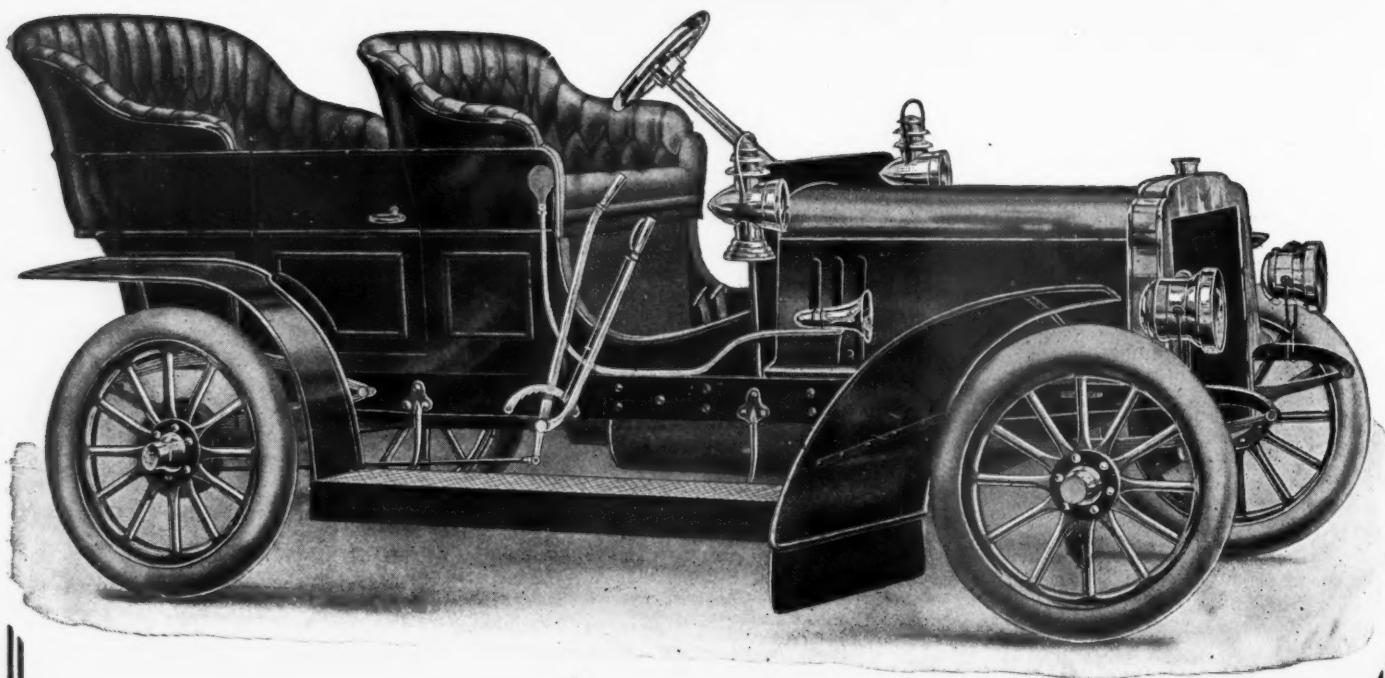
Under favorable conditions we should do sixty-five miles an hour.

I am more pleased than ever with its speed, hill-climbing, quiet operations and mechanical superiority, and cordially urge disinterested automobile experts everywhere to rigidly investigate our claims, and compare our material, workmanship and design with the highest-priced cars in the world—we will win the verdict.

E. R. THOMAS.

For the E. R. THOMAS MOTOR CO., Buffalo, N. Y.

**E. R. THOMAS MOTOR COMPANY**  
1417 Niagara Street      Members A. L. A. M.      **BUFFALO, N. Y.**



## 1906 Ford 6-Cylinder Touring Car Price \$2,500

6 cylinder—40 h. p. 4 to 50 miles per hour on high gear. *Perfected* magneto ignition—mechanical oiler, 114-inch wheel base, luxurious body for 5 passengers, weight 2,000 pounds.

**1906 Ford Runabout**, as advanced as our touring car in design and even more surprising in price—will be fully illustrated and described early in December.

Both these Cars on exhibition at the New York Automobile Show. ....

# Ford Motor Company

Detroit, Mich.

Member American Motor Car Manufacturers Association, Chicago

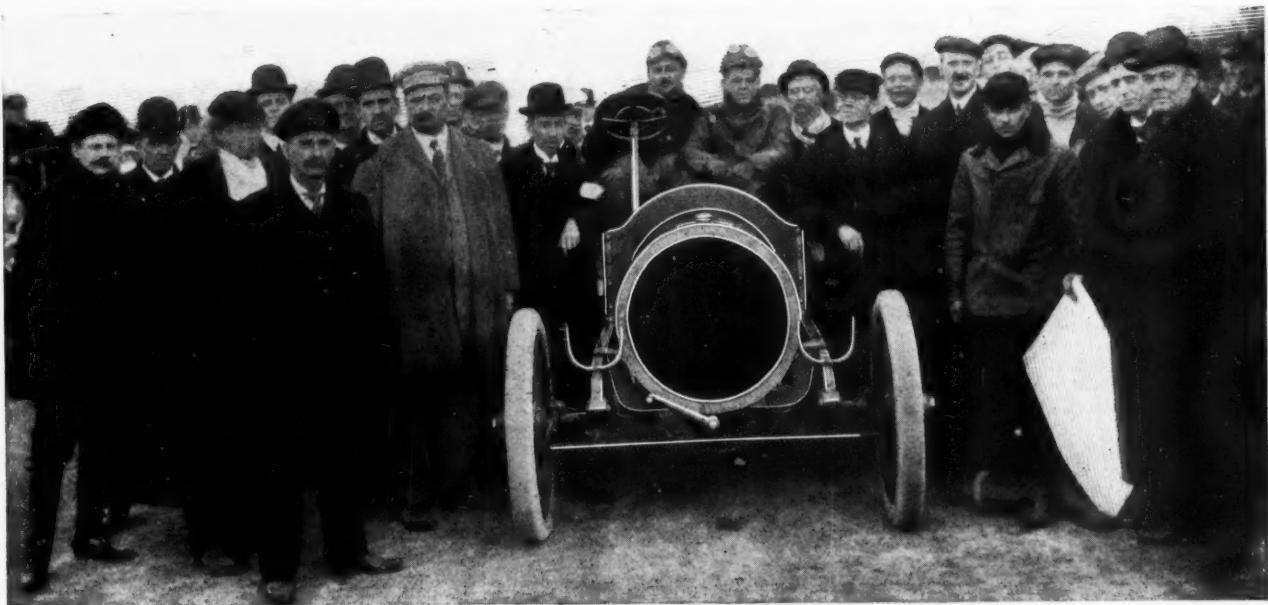
Canadian Trade Supplied by the Ford Motor Co., of Canada, Ltd., Walkerville, Ont.



# National



## Breaks World's 24-Hour Record



The World's Record-Holding National and Officials After the Finish of the 24-Hour Run

A National stripped 1906 Stock Car, at Indianapolis, November 16 and 17, made

**1094  $\frac{3}{16}$  MILES IN 24 HOURS**

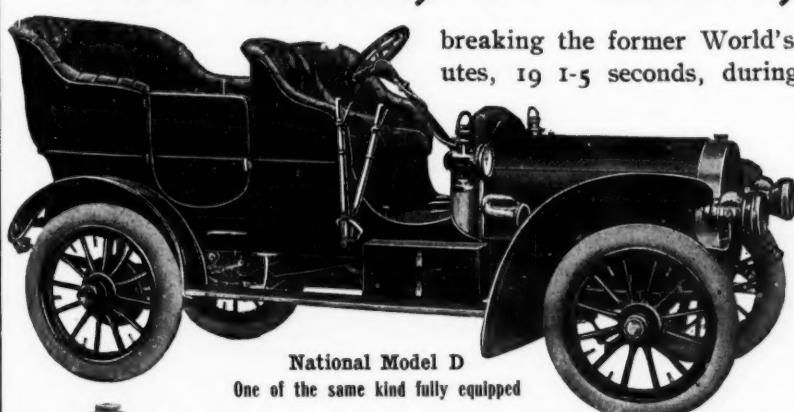
breaking the former World's Record by 78 9-16 miles. Time for the first

**1000 miles, 21 hours, 58 min.,  $\frac{4}{5}$  sec.**

breaking the former World's Record for 1000 miles by 1 hour, 35 minutes, 19 1-5 seconds, during this most convincing demonstration of the

**Unfailing Reliability of  
NATIONALS**

Other records, too numerous to mention in this space were smashed to smithereens. Write us for details and anything else you want to know.



National Model D  
One of the same kind fully equipped



• • OUR 1906 MODELS ARE READY • •

**NATIONAL MOTOR VEHICLE CO.**

1906 East 22d Street

INDIANAPOLIS, IND.

Members American Motor Car Manufacturers' Association, Chicago.



# An Investigation of Goodrich Tires

**Mr. E. Shirts, cashier of the Citizens' State Bank, Noblesville, Ind.,** after using a set of Goodrich Tires through the year of 1904 and all of 1905 up to date, without a repair of any kind, decided to take off the tires for examination just to satisfy his curiosity. **All he found was Goodrich Rubber and Goodrich Fabric perfectly united and looking just as good as new.** His letter:

"In the spring of 1904 I purchased a Cadillac automobile, Model B, equipped with **Goodrich Tires, 3x30 inches.** I used those tires all the season of 1904 and all of this season without a repair of any kind, not a single puncture, and the tires look as good as new, with the exception that the treads are flattened down some. I have had such remarkable success with them that a few weeks ago I took the front ones off to see what they were made of, and found them in perfect condition, not even rim-rusted.

"I have driven my car every day that was fit to be out with my family and have kept them busy both seasons and my experience with them has been one round of pleasure."

THE BAILEY "WON'T SLIP" TIRE.  
Regular Goodrich construction, but provided with the Bailey "Won't Slip" Tread. Prevents slipping, skewing or skidding. :: :

**The B. F. Goodrich Co.**

AKRON, OHIO

New York, 66-68 Reade St. and 1625 Broadway  
Buffalo, 731 Main St. Cleveland, 420 Superior St.  
San Francisco, 392 Mission St. Chicago, 141 Lake St.  
Boston, 161 Columbus Ave. Detroit, 80 E. Congress St.  
Philadelphia, 909 Arch St. Denver, 1444 Curtis St.  
London, E. C., 7 Snow Hill.

# Volier Horns

¶ The *reeds* are what stick most horn makers. Successful metal mixtures and tempering processes for horn reeds are the secrets of a very few men. The non-corrosive, vibratory metal reeds in genuine Volier Horns, which are unaffected by weather and which keep their tone indefinitely, are a feature which alone make Volier Horns superior to any other horns offered in America; but, in addition, there is the matter of

¶ The *bulbs*. In ordinary horns the bulbs are steam cured. They split and crack from use and vibration. In Volier Horns the bulbs are *chemically* cured — another secret process. The *chemical* curing makes Volier bulbs soft, pliable and tough. Volier bulbs do *not* split or crack.

¶ Horn fashions are set by the Volier, which we exclusively import from France. Witness the "Dragon" horn craze this season, founded on the Volier "Dragon."

¶ We can now give you illustrations and quotations on the 1906 Volier styles.



*The Post & Lester Co.*

Hartford, Connecticut

SOLE AMERICAN DISTRIBUTORS

# A Mild Comparison

A comparison of the record of the "HAYNES" car in the elimination race for the Vanderbilt cup, with that of far more powerful cars that were allowed to enter the real race

*—is most interesting.*

Get a record of the two events  
*—and compare.*

Put the "HAYNES" Elimination record beside the records of some of the other cars in the real race  
*—and compare.*

Study what the "HAYNES" Car *did*, and what some of the others *didn't do*—*and compare.*

A few live agents wanted, in a few sections. **WRITE QUICK.**

We are booking orders for exact duplicates of our Vanderbilt entry, in the order of their receipt. Write us about it.

**The**  
**Haynes Automobile**  
**Company**

Kokomo ... Indiana

NEW YORK

Members A. L. A. M.

CHICAGO

# Cadillac Dependability

**JOHN W. MOUNT & BRO.**  
Manufacturers and Dealers  
**Carriages and Automobiles**

RED BANK, N. J., Nov. 13, '05.  
THE CADILLAC MOTOR CAR CO.  
Detroit, Mich.

GENTLEMEN:

I think you are entitled to know of the good work the single-cylinder touring car that I have been running this summer has done. It has never failed to take me wherever I have started to go and have run it almost 5,000 miles since July. It always comes back stronger and seemingly with more power than when starting out.

One of the interesting runs I made was to Atlantic City, a distance of 106 miles from here. Made the run in 5 hours, each way, without having to make a stop for anything and the whole run of 212 miles on 10 gallons of gasoline and less than a cup of oil.

Another run from here to Trenton, 45 miles in 2 hours, speaks well for a car of this power.

These trips were made with four people in car, up and down hills and slackening up while going through towns.

I think there is more real pleasure and less trouble embodied in the little single-cylinder touring car than any car built, regardless of cost.

This car that I have been running and described is only what all the other cars of this type we have sold have done.

Wishing you all success, I am,  
Yours respectfully,

[Signed] JOHN H. MOUNT,  
Of the firm of J. W. Mount & Bro.

## 'NUF SAID

**CADILLAC MOTOR CAR COMPANY**  
DETROIT, MICHIGAN

Member Association Licensed Automobile Manufacturers.

The new **Stoddard-Dayton**  
Model D Touring Car has speed and  
symmetry in every line.

Yet there is not an ounce of weight, not an inch of steel, not a bolt, a nut, nor a bearing, sacrificed that means reduced strength or safety.

At highest speed, the STODDARD-DAYTON is instantly and positively responsive—always under perfect control.

Here is how stripling-weight and dependable strength are ideally combined: The frame is made from hot-rolled, high-carbon, pressed steel. This steel is so tough, so close-textured, that the frame will bear great weight without deflecting a hair's breadth.

In the STODDARD-DAYTON the weight and strain are so evenly distributed that no point gets the brunt. The four-vertical-cylinder (4½x5 in.) motor, of special type, and the transmission are carried on dropped sub-frame, substantially re-inforced. There are roller bearings throughout. The speed change is of the selective type; you can go from high speed to low speed in a second, without clashing or friction. Mechanical lubrication keeps all working parts swimming. Sturdy artillery wheels, 32x4 inches; 12 spoke front, 14 spoke rear. Proportion of power to weight: **One** horse power to every **sixty** pounds. An exquisitely modeled car, finished in pearl gray, with tan upholstering—distinctly an art creation. Other colors optional.

The 1906 STODDARD-DAYTON at \$2,250 represents an honest commercial value between two extremes: (1) a four-cylinder car at a high or fictitious value; (2) a four-cylinder machine at a low and impossible valuation—the most expensive kind of economy. It is the right car and the right guarantee is back of it to insure your satisfaction and protection.

Write for our 1906 catalog descriptive of the new STODDARD-DAYTON Touring Car, Runabout and Limousine. Mailed free.

**THE DAYTON MOTOR CAR CO.**  
*Dayton, Ohio*

**Stoddard-Dayton**

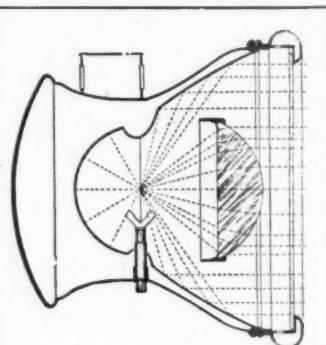


"Again—as good as it looks"

# CERTAINLY!

**THE WORLD DO MOVE  
But Sometimes It Moves  
In a Very Small Orbit**

## FOR EXAMPLE



THE RELIC.  
Theoretical Efficiency, 80 per cent.  
Actual Efficiency, 5 per cent.

Here is a Search-light which we used to make many years ago. We call it the Relic.

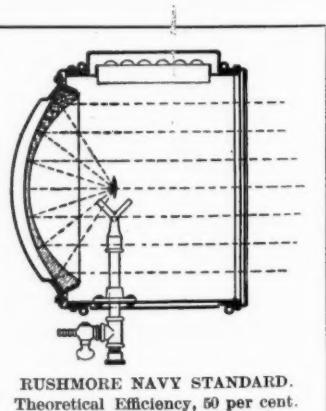
Theoretically it utilizes nearly every ray from its source of light.

Practically, in the presence of burning acetylene, the spun copper, silver plated reflector cannot be kept bright or even clean, and it absorbs most of the light instead of reflecting

it. We discarded the Relic ten years ago, because of its ridiculous low efficiency compared with the Rushmore Navy Standard (short focus) Lens Mirror which we have since used.

The patents under which we manufactured the Relic have since expired, and it has been resurrected by some of the other fellows as the latest ever.

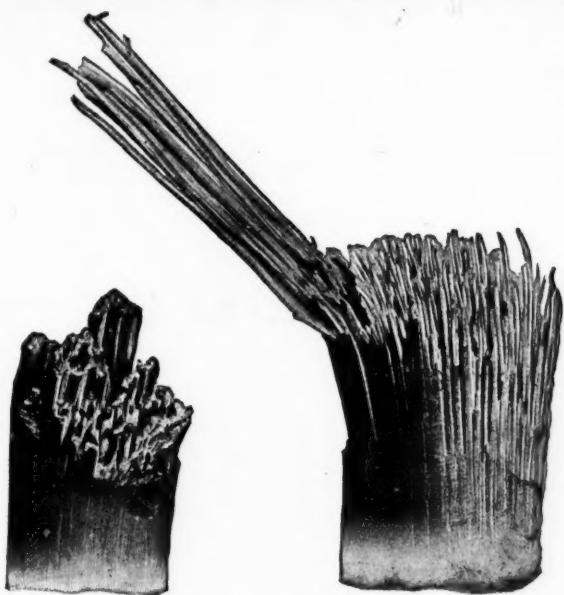
When you compare "Lamps" compare them as we did—in the dark—and see that their flames are the same size.



RUSHMORE NAVY STANDARD.  
Theoretical Efficiency, 50 per cent.  
Actual Efficiency, 40 per cent.

**Rushmore  
Dynamo Works**

**PLAINFIELD, N. J.**



The "short" fracture shown above, while characteristic of poor oak, happens to show the fracture of poor hickory. The other fracture shows the quality of "Imperial" spokes.

## Talks on Wheel Making No. 7

*A bursted tire is robbed of its danger if the car is equipped with "Imperial" wheels.*

Don't lull yourself into a sense of false security by imagining that all wheels rank alike. Read what the *Horseless Age* has to say on the subject:

"As an illustration of what can be accomplished by suitably disposing material, no better example can be found than the wood wheels fitted to motor cars. No part of the car has its material subjected to stresses under a greater variety of conditions. True, there are wheels which are of no value; wheels, in fact, which have no factor of safety and are ready to collapse at the first turn; but they are not the wheels one ought to find on a car."

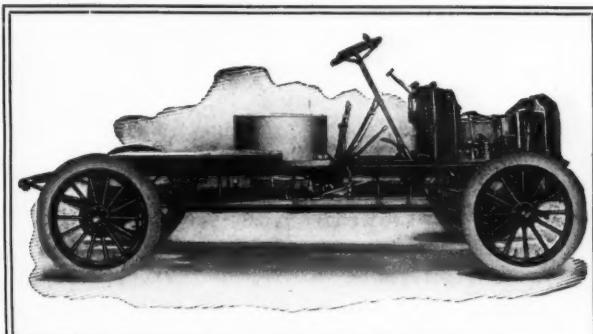
Collapse is usually traceable to two causes—defective material or unsound construction. And sometimes to both.

*The excellence of "Imperial" wheels is based upon the perfection and refinement of orthodox methods.*

**IMPERIAL WHEEL COMPANY**  
FLINT, MICH.

Selling Agent HAYDEN EAMES Cleveland, Ohio

## THE INCOMPARABLE WHITE



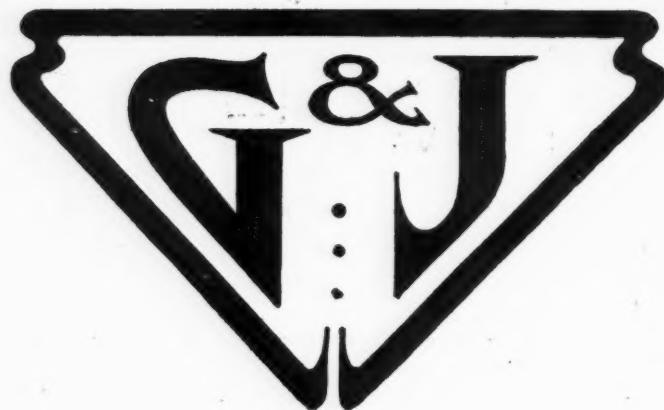
Above is shown the chassis of the Model "F" White car which we are now delivering with touring car, runabout, limousine, victoria and landaulet bodies.

Steam power, as utilized in the White car, possesses unique advantages. There is absolutely no noise, no odor, no vibration and the speed of the car is controlled entirely by throttle. There is an ever-present reserve of power which is often found most useful.

The White steam generator is totally unlike any other steam-making device ever designed. To illustrate the radical difference, we might point out that in our generator the water is at the top and the steam at the bottom. In every other type of boiler the steam is at the top and the water at the bottom. The safety, simplicity and reliability of the system is demonstrated by the performance of the thousands of White cars now in use.

*Write for White Bulletins which tell the story of White victories*

**WHITE SEWING MACHINE COMPANY**  
CLEVELAND, OHIO



**T I R E S**  
Hold the 100-Mile  
**WORLD'S**  
**R E C O R D**

At Indianapolis, Saturday, November 4, W. F. Clemens in a National car fitted with G & J Tires reduced the 100-mile track record to 1:53:21 $\frac{1}{2}$ —not a moment's delay on account of tires. G & J Tires are speedy. They are the most serviceable tires on earth.

**G & J TIRE CO.**  
INDIANAPOLIS

BOSTON      BUFFALO      CLEVELAND      DETROIT      CHICAGO      DENVER      SAN FRANCISCO

**THE Maxwell**  
PERFECTLY SIMPLE  
SIMPLY PERFECT

**16 H. P. Touring Car**  
**\$1,400**

**8 H. P. Tourabout**  
**\$750**

**THE CAR** that made a perfect score in the Glidden Tour—1,004 miles without a single adjustment. No car at less than twice the price made **AS GOOD** a record. No car **AT ANY PRICE** did better.

**THE CAR** that won a victory over all cars costing from one to two thousand dollars in the "Climb to the Clouds" at Mt. Washington. Unlike some contestants, we did not have to send three cars to get one up, but sent the **SAME** car up **THREE TIMES**.

**THE CAR** whose regular stock 8 H. P. Runabout type won the race at Long Branch August 19, making four miles in 5 min. 33 sec., and defeating cars listed at several times the price.

The automobile that has done these things **MUST** be worthy of your consideration. Look at as many cars as you please, but don't buy before seeing the Maxwell.

The agency field is filling fast. If you contemplate applying for a Maxwell agency, better do it now.

**MAXWELL-BRISCOE MOTOR CO.**  
TARRYTOWN, N. Y.

Central Western Representative:  
A. F. CHASE.

Members of American Motor Car Manufacturers' Association.  
Agents in Principal Cities.

Foreign Representatives, (except Canada and Mexico) RICHARD IRVIN & CO., 25 Broad St., New York City.

New York Agents:  
**MAXWELL-BRISCO, INC.**

## The Automobile WASHSTAND-TURNTABLE

It greatly increases the capacity of a garage by saving the space otherwise required for maneuvering cars. It also permits a car to always face the door, thereby avoiding the inconvenience and danger of accident incident to backing it, when the approach is difficult.

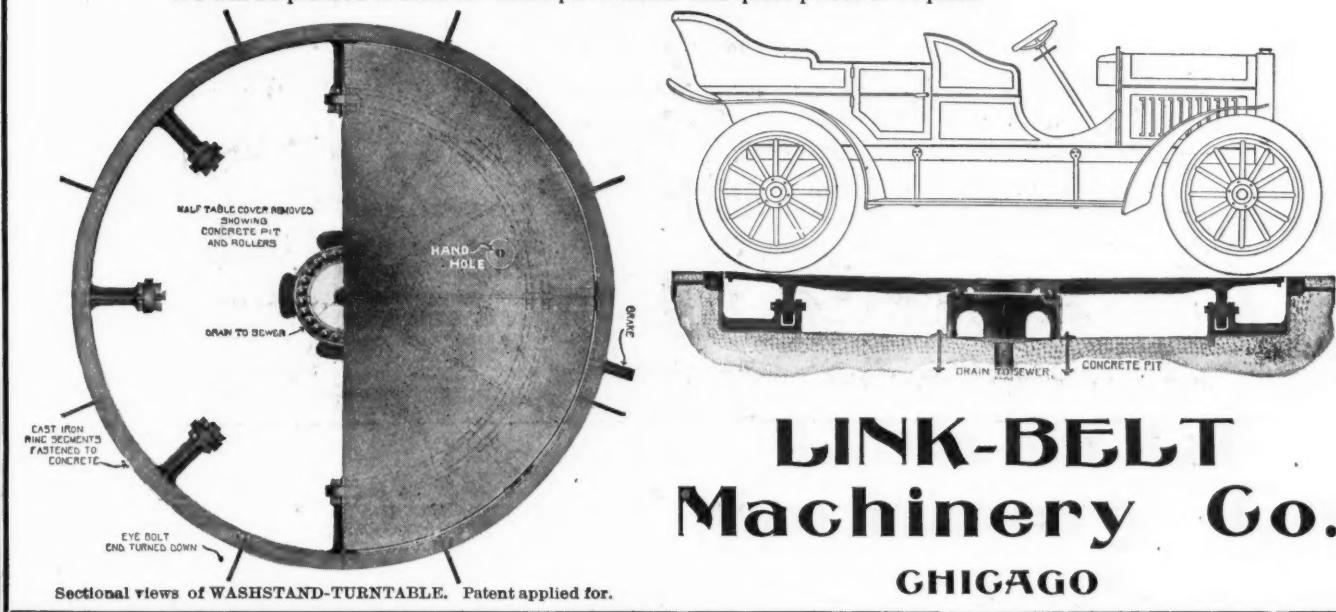
The table is of cast-iron supported by a ball-bearing pedestal in center and rollers near its outer edge. It rests in a concrete pit about 12 inches deep, the edges of which are protected by an iron ring or curb as shown.

It moves easily, is practically indestructible and is absolutely fire-proof.

It greatly facilitates the washing of cars, all water from surface of table and garage floor passing to sewer through a drain pipe in center of pit.

We make Washstand-Turntables and also plain turntables (without the washstand feature) for wheel bases up to 126 inches.

We will be pleased to send full descriptive matter and quote prices on request.



Sectional views of WASHSTAND-TURNTABLE. Patent applied for.

**LINK-BELT**  
**Machinery Co.**  
CHICAGO

## "Firestone" SIDE WIRE TIRES

It takes knowledge born of experience to manufacture a tire that will continue to stand the strain of use on commercial vehicles.

In many instances trouble with tires has made a commercial vehicle unprofitable until Firestone Side Wire Tires were adopted.

We have in our office evidence of what Firestone Tires have done after many others had been tried and found deficient.

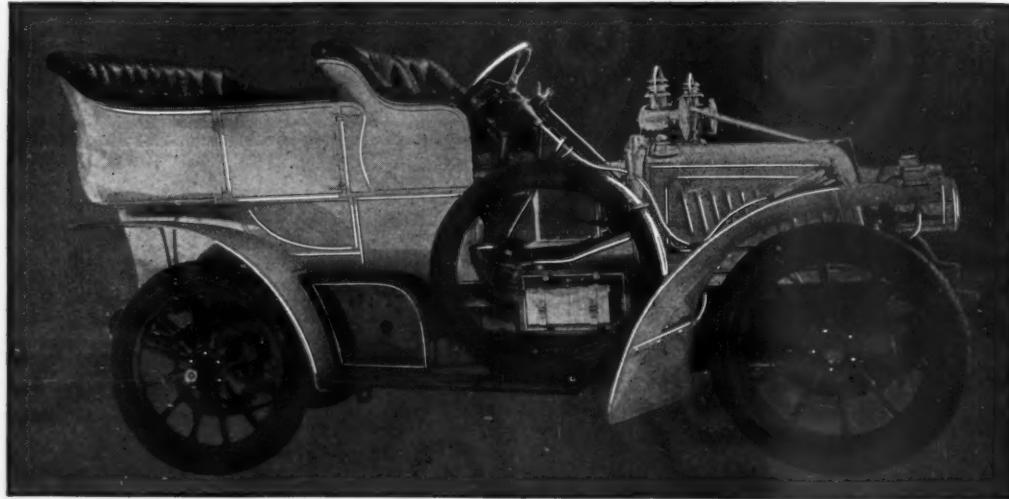
**"Then Why Not Firestone?"**

**FIRESTONE TIRE & RUBBER CO., Akron, O.**

New York, Chicago, Boston, Philadelphia,  
St. Louis and Detroit

# WORTHINGTON AUTOMOBILE COMPANY

547 Fifth Avenue New York City



## 24 h. p. Berg Touring Car

**IMMEDIATE DELIVERY**

**MEMBERS A. L. A. M.**

# MICHELIN

Tires of the Very Highest Grade

Michelin Tires carry more guaranteed weight per wheel than any other pneumatic tire made in the world.

In Vanderbilt Cup Race the Michelin Tires were the only stock tires that did not require attention from start to finish — a record which is entirely exclusive from all other makes represented.

**Michelin Tires are Copied but Never Equaled**

**MICHELIN TIRE AMERICAN AGENCY, Inc.**

6 WEST 29TH STREET  
NEW YORK

E. D. WINANS, Gen'l Mgr.

Telephones: 760-761 Madison Sq.

Branches in all large cities in the United States

# Pantasote LEATHER



An Ideal Material for Automobiles and Motor Boats

**For Seatings** — Pantasote Leather wears better than the natural hide, it contains no oils to dry out, and is impervious to weather; will not crack, peel or chip.

**For Canopy and Cape Tops** — Pantasote Top Materials give a handsome finish to the car, are more durable than the real hide, absolutely water, stain and grease-proof, and vastly superior to the various rubber and inferior imitations of leather, as

Pantasote always remains soft and pliable, and is not affected by climatic conditions.

*Send for samples of the new and complete 1906 line*

## The Pantasote Company

11 Broadway  
NEW YORK

926 Monadnock Bldg.  
CHICAGO

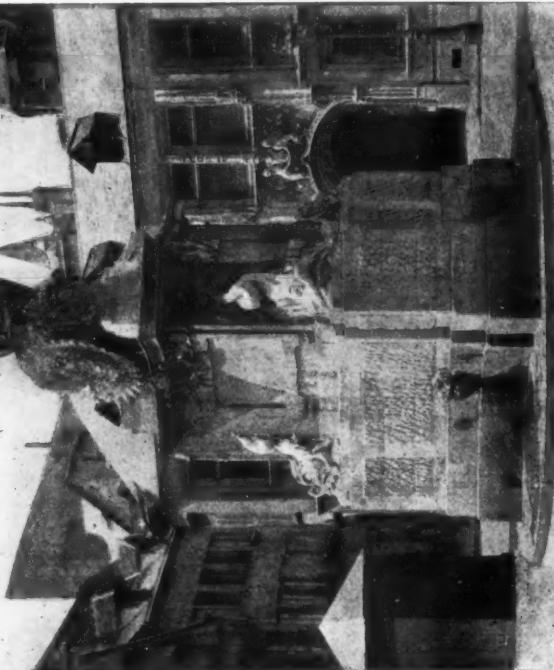
PENNSYLVANIA  CLINCHER



PENNSYLVANIA RUBBER CO.  
JEANNETTE, PA.

## The Hartford Dunlop Automobile Tire

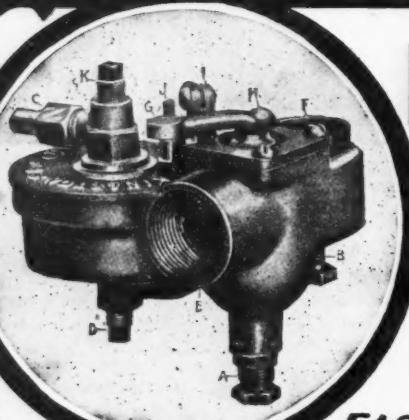
Fastest run so far from Paris here, the last half hour in a driving rainstorm. No trouble yet with the Dunlops and we now hope to get to Havre and make the entire journey on them.



*original casings, Walter Hale*  
ROUEN — Statue de la Pucelle Aug. 4, '05.

Postal No. 4  
Watch for  
Others to  
Follow

The Hartford Rubber Works Co., Hartford, Conn.



# KINGSTON 1906 TYPE-K- AUTOMATIC CARBURETOR

EASY TO UNDERSTAND EASY TO OPERATE

Fuel controlled entirely by equalizing automatic air valves.

Will increase POWER and CONTROL of any 1905 FORD or OLDS car, or money back.

Positively will not accumulate fuel in, or CLOG LONG INLET PIPES.

Perfectly adapted to gasoline cars, boats, airships and motors for any kind of service.

Built for business by the oldest manufacturers in the business.

OVER 30,000 KINGSTON CARBURETORS IN USE

### KINGSTON MUFFLER



**IMPROVED  
FOR 1906**

BYRNE, KINGSTON & CO.,

KOKOMO, INDIANA, U. S. A.

## Jones Corbin Motor Co.

ROOMS 5 AND 6  
430 WALNUT STREET

PHILADELPHIA, PA Aug. 17th, 1905

The Continental Caoutchouc Co.,  
43 Warren St., New York City.

Gentlemen:

Your favor of Aug. 15th. is received and we would say that you were misinformed in regard to our tires.

We have travelled over seven thousand miles with the set of tires mentioned in your letter and have never had a pump on the rear tires (34x4-1/2) but have experienced some trouble with inner tubes on the front pair and we think it is because we are using too small a tire there (34x3-1/2).

Our machine travels very fast over the worst class of roads and the distance of seven thousand miles means something.

This is the only pair of tires we ever heard of going this distance without being pumped.

Yours very truly,

Jones-Corbin Motor Co.,  
Per *Ed. Corbin*.

## We Stand Corrected

We would rather underestimate than exaggerate on the performances of



Admitted to be "The World's Best."

### The CONTINENTAL CAOUTCHOUC CO.

EMIL GROSSMAN, Gen'l Mgr.

43 Warren St., New York  
Factory, Hanover, Germany

# THE Compound WINS

Outclassing all Touring Cars regardless of price, in the New York Motor Club's Six-day National Economy Test, Oct. 30—Nov. 4.

Total Cost  
of  
Carrying Five  
Passengers  
\$18.63

The motor went through the test without the slightest adjustment, proving conclusively that we have brought the compounding of a gasoline motor to a high state of perfection.



700 Miles  
Using But  
43½ Gallons  
of  
Gasoline

Compound No. 6, driven by F. C. Carter, covered the entire distance at a cost of \$3.73 per passenger, and negotiated all hills easily, including the famous Nelson's Hill on the road to Albany.

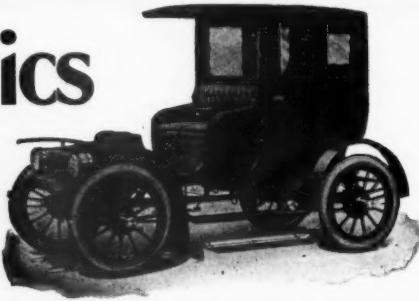
THE E. H. V. CO., Middletown, Conn.



Stanhope

## Baker Electrics

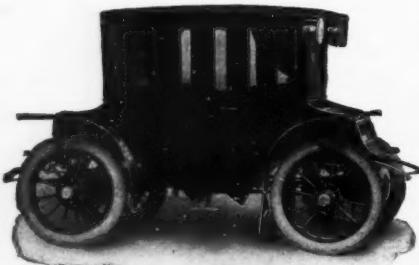
embody every possible good feature required to make them what they are so frequently called —



Depot Wagon

## The Aristocrats of Motordom

Every particle of material used is the best that money can buy. The workmanship is perfect, the upholstery and exterior finish superb. All wearing parts are equipped with ball bearings, reducing friction to the minimum and insuring smooth, easy running cars. The perfect mechanical construction of BAKER ELECTRICS enables us to use fewer battery cells than any other electric vehicle, at the same time securing greater efficiency and lowering the cost of maintenance. Their beauty of finish, quiet running qualities and simplicity of operation make BAKER ELECTRICS ideal for town use.



Inside-Driven Brougham

We desire agents in a few important cities not yet covered. Write for particulars.  
IMPERIALS, STANHOPES, SURREYS  
DEPOT WAGONS, BROUGHAM

**The Baker Motor Vehicle Co.**

24 Jessie Street :: CLEVELAND, OHIO



Outside-Driven Brougham

## Do You Sell Automobiles?

Most discriminating drivers now use

### The Fisk Mechanically Fastened Tires

but the man who has yet to try them will also appreciate your good judgment in equipping his car with them.

The sense of security and full comfort that users of Fisk Tires experience will go far towards making your selection of such an equipment a lasting advertisement.

The long service they render—the comfort they insure—and the amount of time, energy and money they save make their use worth while.

### The Fisk Rubber Co., Chicopee Falls, Mass.

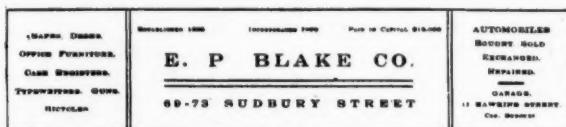
#### BRANCHES

New York, 754 Seventh Ave.  
Boston, 226 Columbus Ave.  
Springfield, 40 Bridge St.  
Philadelphia, 138 N. Broad St.  
Minneapolis, 704 Hennepin Ave.

Atlanta, 103 N. Pryor St.  
Syracuse, 423 S. Clinton St.  
Buffalo, 893 Main St.  
Cleveland, 318 Euclid Ave.  
Los Angeles, 1034 Main St.

Detroit, 254 Jefferson Ave.  
Chicago, 1251 Michigan Ave.  
Kansas City, 1330 Main St.  
St. Louis, 3908 Olive St.  
San Francisco, 114 Second Ave.

You can deal with us from a distant point the same as at the factory.



BOSTON, MASS. NOV. 6, 1905.

Jackson Automobile Co.;  
Jackson, Mich.

Gentlemen:-

We are sending you today under separate cover a photograph of a Jackson car that has been run this season over 10,000 miles by the odometer. We really believe it would pay you to get this into the Trade Journals if the expense is not too much. You wrote us sometime ago that you would have either the Model 'C' or 'D' made with detachable tonneau with fish-tail deck. Have you as yet decided which model you will have in this way? If so, kindly write us the price of machine without the tonneau. We believe it would be advisable to have the cheaper car with detachable tonneau.

Yours respectfully,  
E. P. BLAKE COMPANY  
Per *E. P. Blake*

Mgr.

Pic. EPB-B.

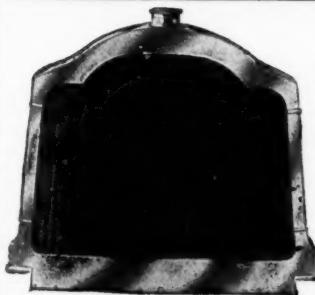
P. S. The tires on this car are Diamond detachable. The two forward ones have never been touched and the two rear tires have been retreaded once. This car is owned and driven by Mr. W. H. Bates, Brookton, Mass.

## OUR AGENTS ARE:

The Jackson Auto Co., Newark, N. J. Eastern distributors.  
L. C. Howard, 1655 Broadway, N. Y.  
Ormond Auto Co., Brooklyn, N. Y.  
E. P. Blake Co., Boston, Mass. New England distributors.  
East Liberty Auto Co., Pittsburgh, Pa., 5969 Centre Ave.  
Diamond Motor Car Co., 2121 Broad St., N. Philadelphia, Pa.  
E. K. Hauser, 1233 New York Ave., Washington, D. C.  
C. R. Dench, Erie, Pa.  
Standard Auto Co., 730 Granite Bldg., Rochester, N. Y.  
Paxson Motor Car Co., Cleveland, O.  
Hagmann & Hammerly, Chicago, Ill.  
Seidler-Miner Auto Co., Detroit, Mich.  
The Jackson Auto Co., 3685 Olive St., St. Louis, Mo.  
Chas. R. Johnson, Coldwater, Mich.  
Chas. T. Biseh, Springfield, Ill.  
The Motor Car Co., Minneapolis, Minn.  
Sioux Falls Auto & Supply Co., Sioux Falls, S. D.  
The David Bradley Co. of Wisconsin, Fond du Lac, Wis.



## JACKSON AUTOMOBILE CO., :: Jackson, Mich.



Tubing used in the construction of Long Spiral Tubing Radiators is spirally wound with a crimped Radiating COPPER flange. COPPER IS COPPER, TIN IS SHODDY. We use COPPER ONLY. Catalogue, Illustrating Many New Types, now in press. Send us your name for our mailing list.

## ANNOUNCEMENT TO THE TRADE

Commencing Nov. 4th the Long-Turney Mfg. Co., of Rome, N. Y., began the manufacture of

### LONG SPIRAL TUBING RADIATORS AND HOODS

Heretofore these goods had been marketed EXCLUSIVELY by the Long Mfg. Co. of Chicago, but the unprecedented demand rendered it imperative that a plant be established in the East to aid in the handling of Eastern and Export trade. The new company, which is under the management of Mr. George W. Turney (for the past 14 years with the Rome Brass & Copper Co.) has been licensed to use all patents, and patents pending, of the Long Mfg. Co. on Spiral Tubing, Radiators and Hoods.

LONG MFG. CO., Chicago, ILL.

**LONG-TURNEY MFG. CO. ROME, N.Y.**

# Change Tires 30 Seconds Goodyear Universal Rim

SUPPOSING you were 25 miles from home, and your tire exploded. And you hadn't another with you. And when you stopped at the garage, the man said: "I'm sorry, but I haven't a single tire of that make."

Wouldn't it make you mad?

Of course it would, if you had an *ordinary* rim. But if you had a Goodyear Universal Rim, you would smile and say: "Bring on any old tire, as long as it's a clincher my rim will take it." And in less than three minutes you would be enjoying the scenery once more.

Because it *isn't* an all-day job to take off and put on a tire when your car has Goodyear Universal Rims. Just jack up the wheel and in 30 seconds the old tire is off, and in another 30 seconds the new tire—ANY kind—is on. You need no tools but the hands—and, are "fixed up" and on the road while the man with *ordinary* rims is hunting for his crowbars and levers.

You see the flange comes right off on Goodyear Universal Rims, like Fig. 1.

And then a 30-inch tire (for example) slides right on to the 30-inch rim like Fig. 2, as easy as you would put on your hat. On an ordinary rim you would have to pry that 30-inch tire over a 31-inch flange.



Figure 1  
crowbars and levers.



Figure 2

You know what a profanity-inspiring job that is, and it doesn't do the tire any good, either.

Now this is all there is to taking off and putting on a tire when you have Goodyear Universal Rims. See how simple and easy it is.



The rim is made up of four parts, like Fig. 3. Nos. 1 and 3 are the removable flanges (rings), which can be adjusted to any clincher tire. No. 2 is the base of the rim attached to the felloe of the wheel. It can be used without fitting on any standard wheel built for the standard clincher rims. No. 4 is the locking ring, which holds the flanges in place.

If you have decided to relieve yourself of all tire troubles and in consequence ride Good-year Detachable Auto Tires, a section of the rim, when put together, would be like Fig. 4.

Or, if you ride an ordinary clincher tire, the rim section would look like Fig. 5.

The ring which holds the flanges in place is split at a point alongside the valve stem, like Fig. 6.

It can't be removed (and, of course, the tire can't come off) while the flange presses against it.

This flange is kept tight against the ring by a

Figure 3

Figure 4

plate which slips over the valve stem, like Fig. 7.

When you wish to remove the tire, loosen the nut which holds the valve stem down, and push the stem up through the rim. This pushes up the plate and lets the flange

Figure 6

ring slide inward, like Fig. 8.

Then lift out the locking-ring, slip off the flange, and pull off the tire.

Time, 30 seconds. No tools but the hands.

Those who are weary of tire troubles are specifying Good-year Auto Tires on Universal Rims. This equipment costs no more than the ordinary kind, and multiplies the pleasures of motoring many times.



Figure 8



Figure 7

Ask for our "Good News Book" and find out all the good points of the Goodyear Auto Tire and Universal Rim. It's of vital interest to the Manufacturer, Dealer or User who is satisfied with nothing but the best.

**THE GOODYEAR TIRE & RUBBER CO., Wallace Street, Akron, O.**

Branches in following cities: Boston, 6 Merrimac St.; New York, 253 W. 47th St.; Chicago, 110 Lake St.; Cincinnati, 242 E. Fifth St.; St. Louis, 712-714 Morgan St.; Cleveland, 69 Franklin St.; Philadelphia, 1521 Spring St.; San Francisco, Geo. F. Moore & Co., 596 Golden Gate Ave.; Buffalo, 719 Main St.; Denver, 220 Sixteenth St.; Detroit, 242 Jefferson Ave.

## The Expected Revolution Has Come

If you can think of a good reason for buying twice the machinery you need in a touring car and paying twice the expense for its upkeep, then you have found the only good reason why you should not buy an

# Elmore

You certainly do not want four cylinders if two cylinders will do the same work and produce the same power—and that is precisely the extraordinary efficiency furnished by the two cycle two cylinder Elmore engine. Understand—the two cycle two cylinder Elmore engine produces two impulses every time the flywheel turns. As you know, the two cylinder four cycle furnishes only one impulse every fourth time the flywheel turns. In other words, the revolution which you have been expecting in automobile construction has come—and the perfect engine is here.

You'll realize quick as a flash when you look into the matter that the two cycle engine is a giant stride in advance—and that to cling to the four cycle in the face of the two cycle triumph is to take a step backward. Lose no time in finding out all about this remarkable mechanical achievement. Send for the technical description, stories of the conclusive tests, opinions of agents and users—the history of a tremendous success which has reached its climax this season after five years of steady improvement.

**THE ELMORE MFG. CO.,**

804 Amanda Street  
CLYDE, OHIO

# GAS-AU-LEC

"THE SIMPLE CAR"



Elegant in Finish  
Luxurious in Appointments  
Built by Skilled Workmen from the best Materials Obtainable

**The Simplest Gasolene Car in the World**  
—both as to construction and control, and the easiest to operate and maintain.

"Marks a New Era in Automobile Construction."

**40-45 Horse Power, \$5,000**

**Corwin Manufacturing Company**  
Peabody, Mass., U. S. A.

# THE AUTO-METER

for your new 1906 car

will tell **how fast** it can travel, **how far** it travels on a trip, **how far in a season**.  
This information will be accurate and will help to determine positively

## SPEED and DISTANCE

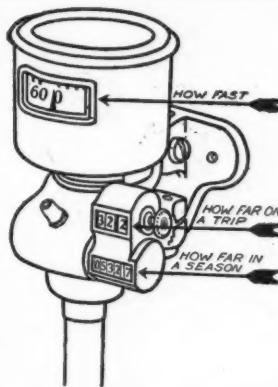
enabling you to get a line on the car.

Then there's the pleasure of it. Thousands of automobilists all over the country use the Auto-Meter and thousands more will use it next year. It has become an indispensable adjunct to a car. Write for a catalogue now and get ready for next year.

**WARNER INSTRUMENT CO., 55 Roosevelt Ave., Beloit, Wis.**

Warner Instrument Co., 143 Federal St., Boston Mass.  
Warner Instrument Co., 1691 Broadway, New York City, N. Y.  
Northern California, G. P. Moore & Co., San Francisco, Cal.

Warner Instrument Co., 804 Steinway Hall, Chicago, Ill.  
Southern California, Heineman & Pearson, Los Angeles, Cal.



# "20TH CENTURY SOAP"

One  
Pound  
Can  
10c

3½  
Pound  
Pail  
25c

15  
Pound  
Pail  
75c

Invaluable for ALL  
Cleaning Purposes  
About a Garage

Nothing can compare with it for  
cleaning and polishing the highly  
finished surfaces of an automobile

CONTAINS NO LYE. Made of Strictly  
Pure Vegetable Oils.

### ABSOLUTELY A PURE SOAP

The Pure Oils of which it is made  
are beneficial to the skin, and keep  
the hands in good condition.

**TRY IT TO-DAY**

Keeps  
Your  
Car  
Bright

Keeps  
Your  
Car  
Clean

Makes  
Old  
Cars  
Look  
Like  
New

**HOFFHEIMER SOAP CO.**  
CHICAGO

## Hill Precision Oilers

The first requisite in a mechanical oiler is **efficiency**. To be **efficient**, it must possess absolute reliability, and give perfect and unfailing service under all conditions.

The second requisite is **economy**.

The Hill Precision Oiler combines both of these requisites—and the feature of economy is not confined merely to the saving in oil used, but in cutting out from the repair bill those items that always result from faulty lubrication. Read this:

**THE OSCAR LEAR AUTOMOBILE CO.**

**Automobiles**  
Corner Fourth and Gay Streets

Columbus, Ohio, September 5, 1905.  
*The Steel Ball Co., Chicago, Ill.*

Gentlemen:—We desire to express our sense of the great assistance your Oiler was to us in our recent 6-day endurance and economy run at Long Branch. In a run of 3,202 miles made in a little over 6 days, we only used 10 gallons of oil and your oiler delivered the oil in an unfailing measure as set. Its operation was perfect at all times. The importance of all this we fully realize and its help in getting this record for our FRAZER-MILLER car. Yours truly,

THE OSCAR LEAR AUTOMOBILE CO.

**THE STEEL BALL COMPANY**

840 Austin Avenue  
CHICAGO ... ... U. S. A.

HAVE YOU SEEN THE NEW

# KOKOMO

AUTOMOBILE TIRE?

MECHANICALLY - ATTACHED

It is just what you have been  
looking for.

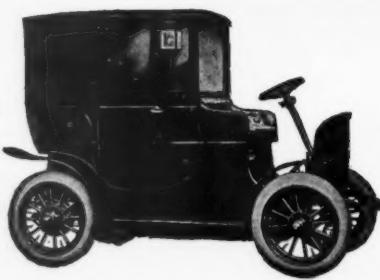
Quickly attached and detached.  
Creeping and Rim Cutting entirely avoided.  
Made of the very best material and workmanship  
throughout.  
Write us for full particulars.



**KOKOMO RUBBER CO.,**  
KOKOMO, IND.

*Columbia*

## Electric Town Carriages NEW MODELS NOW READY



The cut shows the new Columbia Electric Brougham, Mark LXVIII, with Lightened Construction, Pneumatic Tires, 5-Speed Control, Special Exide Battery and other improvements.  
With same Chassis we supply Landaulet, Hansom and Victoria Bodies.

Send for Bulletin No. 75

ELECTRIC VEHICLE COMPANY

Members Association  
Licensed Automobile  
Manufacturers

Hartford, Conn.

New York Branch: 134, 136, 138 West 39th St.

Chicago Branch: 1413 Michigan Ave.

Boston: Columbia Motor Vehicle Co., 74, 76, 78 Stanhope St.

Washington: Washington E. V. Transportation Co., 15th St. and Ohio Ave.

Philadelphia: Pennsylvania Electric Vehicle Co., 250 North Broad St.

WE HAVE IT

Absolutely Tested  
by all kinds of Herculean Work

Positively Proved  
by six months of faultless performance

TREBERT

Cylinders surrounded by Hood with Fan connection on outer end, blowing a  
**CONTINUOUS HURRICANE OF COLD AIR AROUND AND OVER TOP OF CYLINDERS**  
Write for Descriptive Particulars

THE DETAILS

15 H. P., developed at 1500 revolutions.  
Bore and stroke, 3½x5 inches.  
Length of Motor over all, 29 inches.  
Crank Shaft diameter, 1⅓ inches.  
Total bearing surface on Crank Shaft, 10½ inches.  
Bearing on Connecting Rods, 2x1¼ inches.  
Bearing on Wrist Pin, 1¾x1¼ inches.  
Connecting Rods of drop forgings with phosphor bronze  
Crank Shaft.

**TREBERT GAS ENGINE CO**

BOTH AIR AND WATER-COOLED MOTORS FOR MARINE AND AUTOMOBILE PURPOSES  
BUILDERS OF TRANSMISSIONS AND CLUTCHES :::: LIGHT POWERED CARS REBUILT  
REFERENCE: JOHN WANAMAKER, NEW YORK

180 WEST MAIN STREET, ROCHESTER, N. Y.

# FIREPROOF

PORTABLE  
AUTO  
HOUSES

MADE ENTIRELY OF STEEL

Protects your car and your property.  
Affords a SAFE and HANDY place in which to keep your automobile, SUMMER and WINTER, when not in use.  
DOES NOT CONFLICT WITH FIRE ORDINANCES.  
DOES NOT BECOME A PART OF THE REAL ESTATE.  
Easily erected by unskilled labor and can be moved as often as desired.  
By keeping your car at home instead of at a garage (more or less distant from your residence), you are assured that no unauthorized person uses your car, unknown to you.  
We make all styles and sizes. Send for catalogue of prices, illustrations and complete particulars. Address

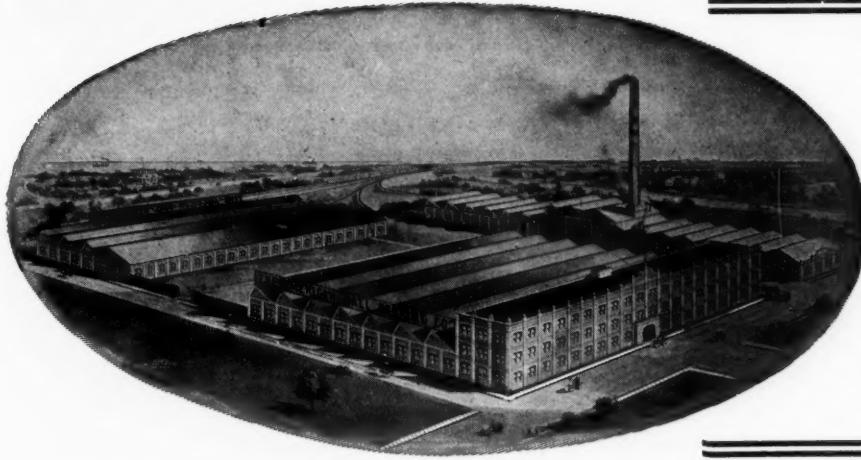
**The Lloyd Iron Roofing & Paint Co.**  
107 West Monroe St. :: Chicago, Ill.

## FAST COLOR AUTOMOBILE TOPS THAT NEVER LEAK CAN BE MADE OUT OF THE KOKUK FABRICS

A GUARANTEE  
With All Goods  
Bearing This  
TRADE MARK



MANUFACTURED EXCLUSIVELY BY  
**F. S. CARR**  
74 Pearl Street, BOSTON, MASS.



The output of COMPLETE FRONT and REAR AUTOMOBILE AXLES of this plant exceeds the capacity of all competition combined.

### THE AMERICAN BALL BEARING CO.

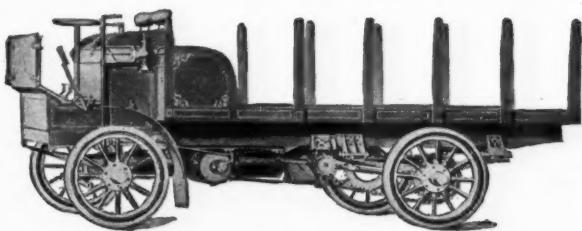
L. S. & M. S. Railway and Edgewater Park  
CLEVELAND, OHIO, U. S. A.



**MR. DEALER:** Why not handle a line that you know will satisfy your customers instead of taking chances on "just as good" lamps. YOUR profit is as MUCH or MORE on Solars, and your customers "stick." Write us to-day for prices on our 1906 line.

**BADGER BRASS MFG. CO.**  
New York Office, 11 Warren St. KENOSHA, WIS.

## KNOX



NEW MODEL STAKE TRUCK

Developed along the sound lines of construction that have built up for us the largest Gasoline Commercial Car Business in the country.

POWERFUL      RELIABLE      ECONOMICAL  
CARRYING CAPACITY, 6,000 LBS.

Cylinders Air Cooled    Speed 12 Miles Per Hour  
Chassis is adapted to bodies of various styles

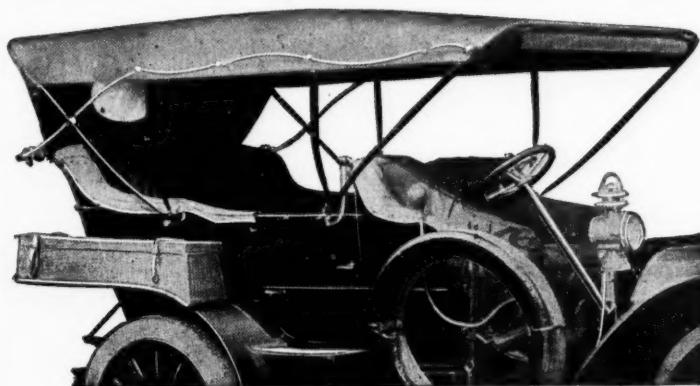
Every firm using trucks of large capacity should investigate this new model. It is one of the finest products of our many years' experience in building cars for "All the Year Round" service. Write for particulars as to Waterless Knox D-4 Stake Truck.

Agents in All Principal Cities.

**KNOX AUTOMOBILE CO., Springfield, Mass.**

Largest and Oldest Manufacturers of Gasoline Commercial Cars.

MEMBERS A. L. A. M.



WE CAN <sup>MAKE</sup> POOR TOPS BUT DON'T

**LONDON TOPS** are correctly designed for each model car—are built in the best possible manner to stand the wear and tear a top is subjected to. Heavy bows, reinforced, stayed and cross stayed, padded to give proper shape, front and back stay straps, with or without joints.

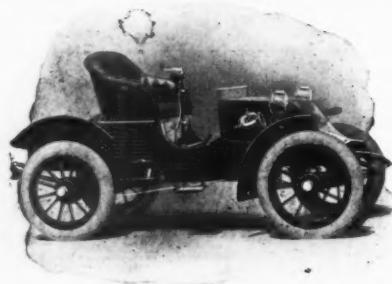
**The Best Possible in Top Construction**

Each top has Detachable Roll Front, Front Side, and Side and Rear Curtains, with ample celluloid lights—ready to attach to cars.

**London Auto Supply Co.,** 1229 Michigan Ave.  
CHICAGO

# ADAMS-FARWELL

THE "REVOLVING-MOTOR" CAR.



Our system is no longer an experiment, as our cars are now being operated every day by satisfied customers. In proof of this let us send you copies of letters received from owners of 1904 and 1905 models.

Three and five Cylinders—20-25 and 40-45 Horsepower  
Six Models \$2,000 to \$4,000—Highest Grade Only

No Water: No Radiator: No Fly-wheel: No Muffler: No Fan: Automatically Governed

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THE ADAMS COMPANY, Dubuque, Iowa, U. S. A.

## MOTORS — All Commercial Sizes

CONTINENTAL ENGINE CO.

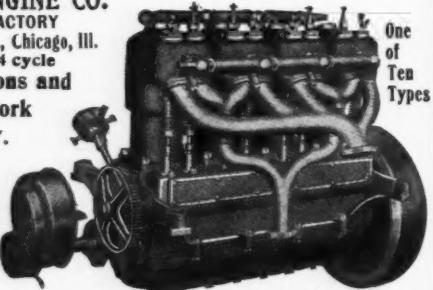
NEW OFFICE AND FACTORY  
Cor. Kingsbury & Huron Sts., Chicago, Ill.  
1½-40 h. p. 2 and 4 cycle

Designs, Specifications and  
Special Contract Work

**OUR SPECIALTY.**

4-Cyl. air cooled,  
weight 90 lbs.,  
total. 3-Cyl. air  
cooled, 75 lbs.  
total.

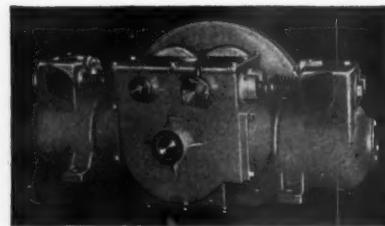
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VERTICAL AND HORIZONTAL

25 H. P. Vertical      16 H. P. Opposed

## High-Class Automobile Motors



The  
A. Streit  
Machine  
Co.

CINCINNATI  
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## COLUMBIA SEARCHLIGHTS and GENERATORS



Guaranteed  
to be  
better than  
most,  
and as good,  
if not  
better, than any



Generator No. 2—Capacity  
32 oz. Will supply  
from one to four Burners.  
Equipped with a  
Condenser.

**WRITE  
US**

Model No. 1—5 in. Mirror Lens,  
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With Adjustable Burners

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## MOSLER "SPIT-FIRE" PLUGS

They ACTUALLY "SPIT-FIRE"  
while others spark only

**BASE** { Facilitates Sparking. Makes Plugs Spit-Fire.  
Acts as Condenser of Electricity.  
Protects Insulation and Sparking Points.

**STANDARD SIZE, \$1.50, Postpaid. SPECIAL, \$2.00.**

With Patented Protector, \$ .50 additional.

Used by the Leading Manufacturers.  
INSIST upon Name and Patent Dates.  
BEWARE of Valueless Imitations.

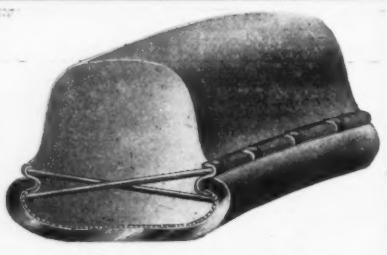


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Is Constructed on a Scientific Basis.  
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Tire Fastener for Heavy Work

Save Time, Money and Trouble and  
GET MOST WORK out of

## MOTZ CLINCHER TIRES

Solid Rubber or Cushion Types  
and made to fit any standard clincher  
rim in which pneumatic tires are used



Tire Fastener for Ordinary Work

**RESILIENT AND  
"THERE WITH THE WEAR"**

The Motz Clincher Tire & Rubber Co.  
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**Self-Starting from the Seat**  
(With Make and Break Ignition)

# "Matheson"

"America's Finest Motor Car"  
1906 Models—40 and 60 H.P.

Our New Factory now building, in... **WILKES-BARRE, PA.**  
will be one of the largest and most modern automobile plants in existence. We will  
move into this new plant about January 1, 1906. Address until then.....

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Holyoke, Mass.

HIGHEST GRADE ONLY

## Aluminum Castings

THE ALLYNE BRASS FOUNDRY CO.

CLEVELAND AND DETROIT

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THE GARILLUS AUTOMATIC CARBURETER is a perfectly automatic carburetor, without a float, without compensator, easy to start, sure to run. So simple it cannot get out of order. Greatest economy. Highest efficiency. An easy starter on four cylinder engines. Money refunded if not satisfactory.

The Goddard Machine Co., Holyoke, Mass., says: "The GARILLUS CARBURETER gives a 10 per cent higher efficiency than any carbureter we have tried, producing in a test two h. p. more than the ..... and one h. p. more than the ..... We believe in it thoroughly." (These were two prominent float feed carburetors.)

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GOOD COOLERS



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Patents Pending

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Our Winter SNAPS LIST of Sacrifices is now ready and goods are offered at sacrifice prices. Here are a few:

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14 and 18-in. Copper Steam Boilers.  
Cadillac Front Axles.  
Bevel Differential Gears.  
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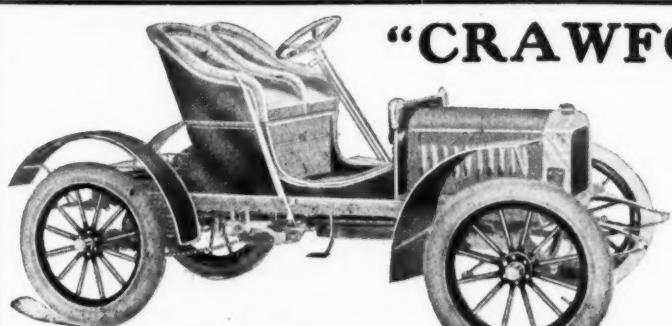
And hundreds of other attractive lots of goods you need. Write us for the SNAPS lists.

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Manufactured by the originator of the well known "Crawford" bicycles

The High Powered Runabout for City and Country Use.  
2 cylinder upright actual 10 h. p. Wheel base, 78 inch.  
Ball bearings throughout.  
2 speeds ahead and reverse controlled by one lever.  
2 powerful foot brakes.  
High grade workmanship throughout.  
Write for catalog.



Price, \$850

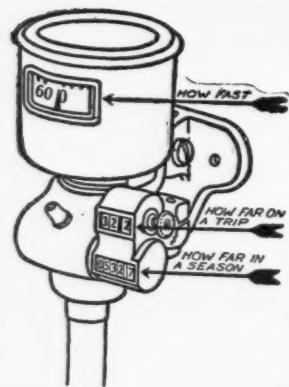
**CRAWFORD AUTOMOBILE CO.**

New Amsterdam Motor Transportation Co., 152 W. 56th St., Sole representatives for New York City and vicinity

Main Offices and Factory: Hagerstown, Md.

# THE AUTO-METER

for your new 1906 car



will tell **how fast** it can travel, **how far** it travels on a trip, **how far in a season**.  
This information will be accurate and will help to determine positively

## SPEED and DISTANCE

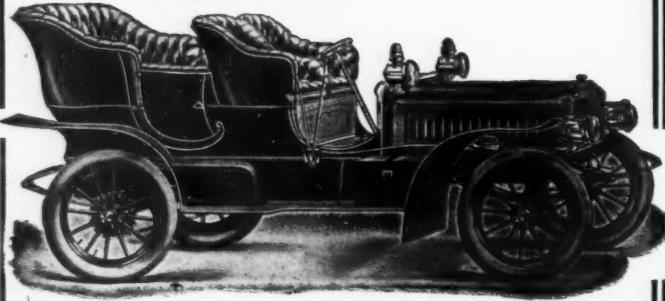
enabling you to get a line on the car.

Then there's the pleasure of it. Thousands of automobilists all over the country use the Auto-Meter and thousands more will use it next year. It has become an indispensable adjunct to a car. Write for a catalogue now and get ready for next year.

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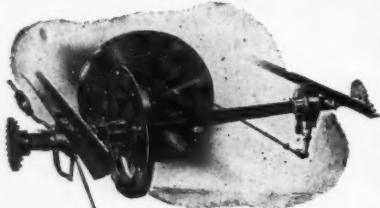
Warner Instrument Co., 149 Federal St., Boston Mass. Warner Instrument Co., 1691 Broadway, New York City, N. Y.  
Warner Instrument Co., 804 Steinway Hall, Chicago, Ill. Northern California, G. P. Moore & Co., San Francisco, Cal. Southern California, Heineman & Pearson, Los Angeles, Cal.

*The Lambert*



Model 7. 28-52 h. p., \$2,000

## A 16 h.p. Runabout



Our Noiseless Transmission

The most powerful machine on the market, a 1906 model.

Write for specifications.

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**ANDERSON, IND.**

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Best Material

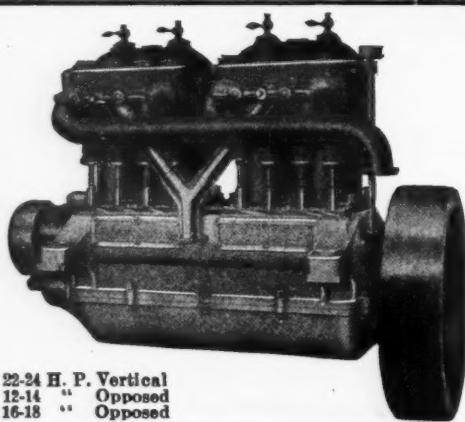
Accurate Construction



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K. Franklin Peterson, Western Sales Agent  
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22-24 H. P. Vertical  
12-14 " Opposed  
16-18 " Opposed

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For your 1906 cars. Efficient, light and durable. Our prices will interest you. Performance and deliveries guaranteed. Correspondence solicited.

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of trouble arising from fouled spark plugs in a Royal Tourist? We never did. In fact we have yet to hear of any owner of a Royal Tourist having any mechanical troubles with his car.

# ROYAL

We have a full description of 1906 model ready to mail to you if you will send us your address. Will also mail booklet explaining performance of '06 model in Vanderbilt Trial Race.

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Member A. L. A. M.

## A TIMELY WORD TO DEALERS



### THE GALE \$500

*Model A* Will be a genuine sensation in 1906

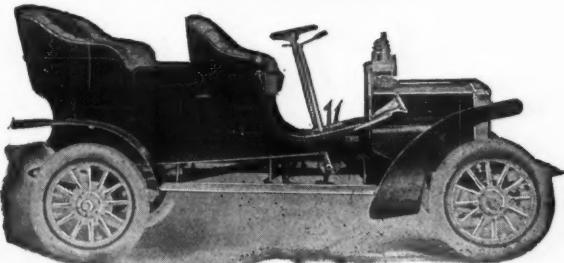
Every Up-and-Doing Dealer Knows the value of handling A GOOD CAR at a low price. THE GALE stands alone in its class.

By all means get our preposition to dealers for 1906 ... It will interest you SURE. Address

**WESTERN TOOL WORKS**  
*Galesburg, Ill.*

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"Noiseless and Dustless"



7 h. p. Runabout . . . . .	\$ 650
18 h. p. Touring Car . . . . .	1,700
18 h. p. Limousine (4 passengers) . . . . .	2,500

### Northern Crank Case and Gear Case Combined

Are cast as an integral unit. This case which is an original Northern conception insures perfect alignment of all working parts and absolute protection from dust and dirt.

### Three Point Motor Support

Each cylinder and the rear end of the gear case rest upon the frame. Even should the frame be distorted the alignment of gears and motor would not be altered. These are only two of many exclusive Northern advantages. Send for complete catalogue illustrating the entire line.

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### MODEL "A" 30-35 Horse Power. \$2500.00

Four-cylinder, water-cooled motor. Interesting features—110-inch wheel base, 34-inch wheels with 4-inch tires, pressed steel frame, three speed sliding gear transmission, mechanical oiler, and large roomy body of handsome design.

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Practically the same construction as above, except on a smaller scale. Four-cylinder vertical water-cooled motor, 100-inch wheel base, 32-inch wheels with 3 1-2 inch tires, neat new design of double side entrance body.

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Double opposed motor under the body, plenty of radiation, lots of bearing area, new design of water pump, mechanical oiler, 86-inch wheel base, running boards at side, and detachable side entrance tonneau body.

*Advance circular ready for distribution*

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East Moline, Ill.**

# "SOOT-PROOF WINS"

Five Prizes Were Awarded to the Cars Using "Soot-Proof" Plugs

The "McMurtry" Prize for the car having the least ignition trouble was awarded to a Reo using "Soot-Proof" Plugs. These cars covered a distance of 700 miles during the National Economy Test of the New York Motor Club, October 30 to November 4, 1905.

These cars had absolutely no spark plug troubles, and the original plugs were used throughout the entire run. Thus again has the "Soot-Proof" Plug demonstrated its superiority, reliability and economy.

*"SOOT-PROOF" in Name and Fact  
Non-short-circuiting Self-cleaning*

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# E & J

MEANS

Lamp No. 70  
**1906 LAMP EQUIPMENT**  
We Guarantee to Please You in Both Quality and Price. Write us.  
**Edmunds & Jones Mfg. Co.**  
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QUALITY In LAMPS  
REGARDING YOUR

**"GEECEE E"**

THE ONLY  
NON-LIQUID  
STORAGE BATTERY  
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"GEECEE"  
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An unequaled ignitor. Higher in capacity and voltage than any wet battery now on the market.

Acid (Electrotype) in suspended form. Can't spill or leak. Short circuit an impossibility.

National Sales Corporation  
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## The Care of the Car

Washing the body of the machine, keeping the polished surface free from lubricator, road dust and gutter muck is just as essential to the life of an Automobile, as is the attention given the running gear.

*Mobo*, the new cleanser for Automobiles, will easily and quickly remove grease, dirt and grime and all traces of a hard run, without dulling or scratching the highly polished surface.

# MOBO

is unlike common soap, as it positively contains no free alkali. Being a preservative as well as a cleanser, it prevents varnish or paint from peeling or cracking, and adds a fine gloss to the surface.

*Mobo* may be used with profit on leather goods, harness or woolen fabrics. Cannot harm the most sensitive skin, as it is a purely vegetable oil preparation and absolutely contains no free alkali. Put up in 2-lb. and 8-lb. cans; also in tubs, half barrels and barrels.

If your supply man does not keep *Mobo*, send us his name and address, and we will see your wants are supplied.

**JOHN T. STANLEY**  
New York.

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Our specialty is the manufacture of parts for the very highest class of cars—parts that are as good as life insurance. We make:

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CHANGE GEAR  
STEERING GEAR

CLUTCH

DISTANCE ROD AND BRACKET

PROPELLER SHAFT

LEVERS FOR EMERGENCY-BRAKE AND  
CHANGE-GEAR

Parts of one size are suitable for cars weighing up to 2400 lbs. and of 30 h. p.

Parts of the other size are suitable for cars weighing up to 2800 lbs. and of 50 h. p.

Write for Circular No. 12.

**THE GARFORD COMPANY, ELYRIA,  
O H I O**

Sales Manager: HAYDEN EAMES, Cleveland, Ohio

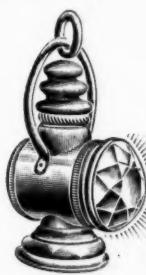
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RACING CAR  
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We are now importing a complete line of Mechanical Automobiles, including side entrance and rear entrance Touring Cars, Runabouts, Racing Cars, etc., which are mechanically operated with clock work and spring. Catalogue mailed on request.



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## The Whitlock Cooler

Was used on the Locomobile Racer that finished third in the Vanderbilt Cup Race. It was never touched during the race. It did its full duty. It held its water and kept the engine cool.

### THE ONLY CELLULAR COOLERS MADE IN AMERICA

that were used in the 1905 and 1906 Vanderbilt Cup Racers, also the 1906 Gordon Bennett Race.

Quality and efficiency only figure in an event of this importance. We make coolers of the **HIGHEST EFFICIENCY**. The leading makers of automobiles have recognized this fact by adopting

### THE WHITLOCK COOLERS

continuously for the seasons of 1903, 1904, 1905 and 1906.

## The Whitlock Coil Pipe Co.

Hartford ... Conn.

## PREST-O-LITE GAS TANK

No Waste  
No Odor  
No Attention  
Tips Never Clog  
Nothing to Freeze



SIMPLE ENOUGH  
When you want gas, turn it on.  
When you don't, turn it off.

### NEVER AFFECTED BY EXTREME COLD

Generators often give trouble from freezing up and also cause moisture to collect in the pipe line, which stops the flow of gas.

You won't find these troubles or any others with the Prest-O-Lite gas tanks.

Prest-O-Lite Gas Tanks are  
**ALWAYS READY FOR SERVICE**

No time lost      No Inconvenience      Write for booklet

**PREST-O-LITE CO., - Indianapolis, Ind.**

Exclusive Licensees under patents of the Commercial Acetylene Co.  
AGENTS IN MOST CITIES. :: :: WE WANT THEM IN ALL



Constant jarring over rough roads is hard on lamps, but it can't shake apart

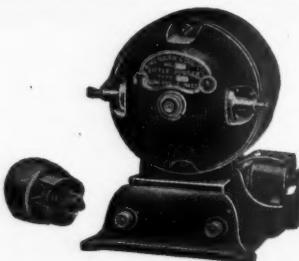
### The Neverout

#### Mirror Lens Searchlight

This strong projector is also the most powerful. The gas is furnished in the safest, cheapest and best manner by the new *Neverout Patent Safety Gas Producer*. Built on an entirely new principle. Instantly lighted and extinguished without odor or waste.

Write for free illustrated catalogue.

**ROSE MFG. CO.**  
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### THE AMERICAN LITTLE WONDER DYNAMO

Has system of storage in the base; requires no other batteries for starting. If you desire a first-class machine at a low price, be sure and get the LITTLE WONDER.

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## Automobile Bows

Victoria

Oval Top Express

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### ARE BEST

made of tough second growth ash, because they are light, durable and retain their shape well. We make them any size, any width and any height. Are in position to fill orders promptly and solicit your inquiries.

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### 1905 - VESTA - 1905 Ignition Battery

4 Volt, 60 Amp. hours  
 $9\frac{1}{2} \times 3\frac{3}{4} \times 8\frac{1}{4}$ . Price, \$18.00  
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Satisfaction Guaranteed by

**VESTA  
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1336 Michigan Avenue, CHICAGO

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### FORGET IT AND USE WEED'S TIRE GRIPS.

POSITIVELY STOPS SLIPPING OR SKIDDING.  
THEY MAKE BAD ROADS GOOD  
WEED CHAIN TIRE GRIP CO.

SEND FOR  
BOOKLET "C"

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## Veeder ODOMETERS

For \$10.00 you can get the Form B Veeder Odometer which goes on the left steering arm, and for \$25.00 you can get the Form D, which goes on the dash. The latter type has two registers, one of which may be set to zero at will.

"It's Nice to Know  
How Far You Go."

**THE VEEDER MFG. CO., 25 Sargeant St., Hartford, Conn.**  
Cyclometers, Odometers, Tachometers, Counters and Fine Castings.

LATEST TYPE      **WILLARD**      LATEST TYPE

## STORAGE BATTERIES

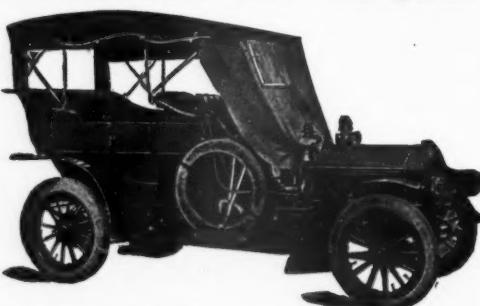
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Automobiles Regularly

75 MILES AND OVER ON ONE CHARGE

Write for Particulars

**The Willard Storage Battery Company**  
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**APPERSON BROS., KOKOMO  
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# WITHERBEE



## Storage Batteries

Are guaranteed to give satisfaction or purchase money will be refunded

With our economy recharging outfit you can recharge your batteries either in your home or office. Write for descriptive pamphlet.

FOR SALE BY THE LEADING JOBBERS

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We originated supplies of this nature, have many patents on them. We make nothing but the best. We take *pride* in the bright ideas brought out by our designer, and we back up these with materials of quality and fine workmanship.

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**Don't ruin your reputation** by handling spurious imitations of our goods. That "just as good gag" is played out, you don't want to have to use it.

We **advertise to your benefit.** Do the imitating pirates? **No!** We make high class goods. Do the above named gentry? **No!**

Our supplies sell for standard and fair prices. We protect you and the dealer. Do the imitators? **No!**

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Now the public want the best. We make it, and if there is publicity and value in advertising we intend to see that they get what they want.  
*Will you give it to them?*

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New Haven, Conn.

Catalog Ready

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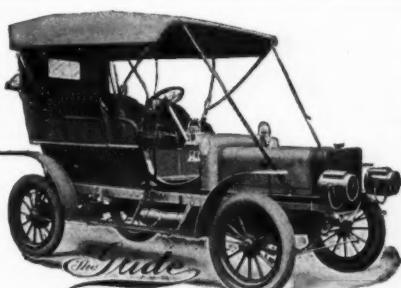
A slight pressure on the handle creates a great pressure in the tube. Capacity large; results quick. Tire troubles cease once you secure an Imperial-Wixon. Simple, compact, convenient.

**\$5.00 ON APPROVAL**

Ask any dealer or write us

**IMPERIAL BRASS MFG. CO.**  
249 S. Jefferson Street, CHICAGO  
Motor Car Equipment Company, 55 Warren St., New York  
Sole Export Agents

Pat. allowed

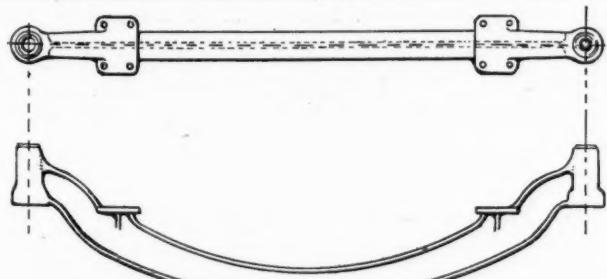


## 1906 MODELS Now Ready

Model E is a 30 H.P. vertical four-cylinder car with bevel gear drive.

Model F is an 18 H.P. two-cylinder opposed car and shows lots of speed and hill climbing power.

WRITE FOR CATALOGUES OF THESE NEW MODELS  
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Chicago Representatives, Holmes-Schmidt Motor Co., 1502, Michigan Ave.



The Winton Front Axle Casting of Parsons' Manganese Bronze  
Fifty thousand pounds of Ingots furnished for the 1906 Cars.  
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## THE ELECTRIC STORAGE BATTERY CO.

### PHILADELPHIA, PA.

SALES OFFICES: New York, Boston, Chicago, St. Louis, Cleveland, San Francisco, Toronto, Canada

## Dust Guards

Make Motoring  
a Clean Sport

For \$20.00 I guarantee automobilists absolute freedom from dust. Booklet to inquirers.

W. H. BROWN

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## "TRIUMPH" GASOLENE TANK GAGE

Applicable to tanks with or without pressure to show quantity of gasoline.

### SIMPLE, RELIABLE, SUPERIOR IN WORKMANSHIP

The "Triumph" Gasoline Tank Gage is part of the regular equipment of all "Pierce Great Arrow" Cars for season of 1906. The only Gage endorsed by builders of first class cars.

See that your New Car has a "Triumph" Gage

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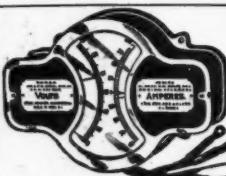
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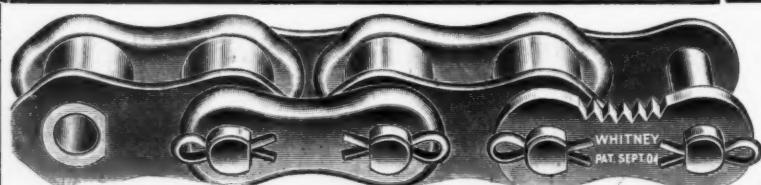
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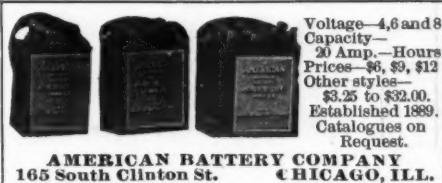
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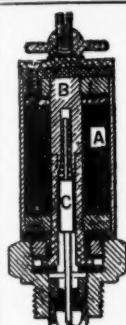
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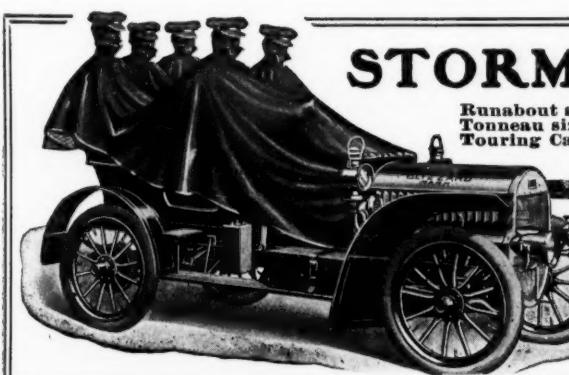


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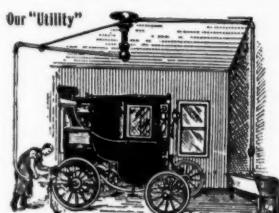
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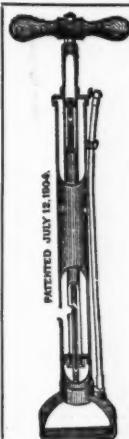
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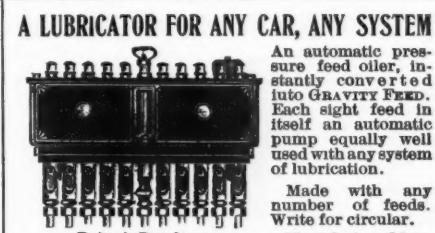
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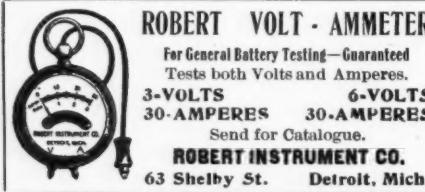
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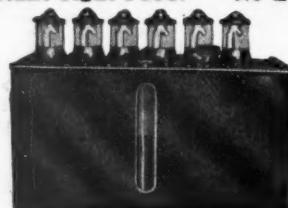
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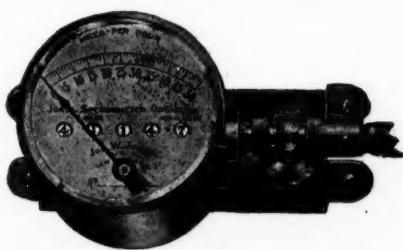
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122 West 32d Street, - NEW YORK



**Standard Roller Bearing Co.**  
**STEEL BALLS**  
**BALL BEARINGS**  
**Roller Bearings**  
**Automobile Axles**  
Send for Catalogue. PHILADELPHIA

**PACKARD ENAMELED**  
**IGNITION CABLES**  
**NEVER DISAPPOINT**

They are giving entire satisfaction to over 100 high-class automobile manufacturers. Will you permit us to convince you of their worth? PROOF AGAINST HEAT, GREASE, OILS AND WATER  
THE PACKARD ELECTRIC COMPANY  
WARREN, OHIO, U. S. A.



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**NON-FREEZING FLUID**—Guaranteed. Thin as water. Cools as well as water. Circulates as well as water. Freezes at 36 below zero. No acid. Won't corrode or damage system in any way more than water.

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**MARION FLUID CO.**, First & Adams Sts., Marion, Ind.

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All Your Oiling Troubles Eliminated  
Any Number of Feeds  
Write for Catalogue

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Made in 2 styles and 5 sizes. They are automatic, and their movements are a model of simplicity, are absolutely safe, and cannot drop. Working Handle below center raises, above center lowers. Works at any angle. No. 15, like cut, for vehicles of 2 ton, height 10 inches, rise 7 inches, weight  $4\frac{1}{2}$  lbs., price \$ .50. Express prepaid in the United States. **OLIVER MFG. CO.**, 205 S Desplaines St., Chicago, Ill.

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Prevents the Finish from Cracking or Staining

Used by the Chicago Garages. Send for sample.

**\$2 PER GAL.** **MAT. WEIS**  
1412 Michigan Avenue, CHICAGO

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so much the better, but if you are not, it really does not matter, for you've only to try a "Never-Miss" to realize that

### NEVER-MISS Spark Plugs

are the perfection of ignition. Mica (Plugs) Porcelain. They are the one plug that satisfies. They take and bring you back. The 1906 Never-Miss (patent applied for) is the best. Any size, any car, any where, \$1.50 and worth it. Coils, Battery Connections and Chain Tools. Just get acquainted with Never-Miss. The acquaintance will be lasting, our word for it. 1 Doz. Battery Connections free with 2 Plugs. Fully guaranteed. Write today. The longer you wait the more good spark plug enjoyment do you "Miss." See the point?

**Never-Miss Spark Plug Co.**, Lansing, Michigan

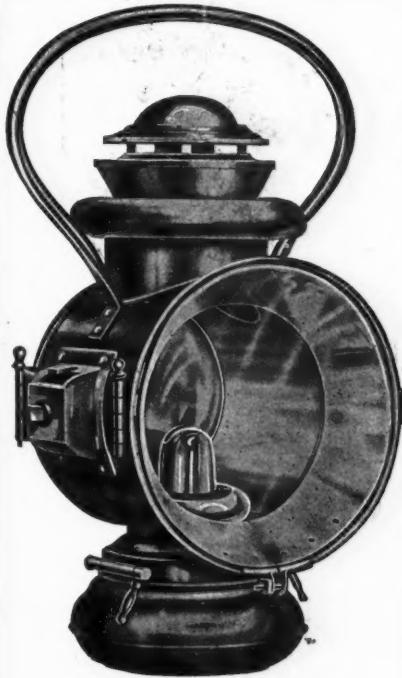


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Made any way at least expense, shipped anywhere. Why not have a "Garage" or "Auto Inn" sign over your door. Your front is your best advertisement. Send for price list.

**U. S. ELECTRIC SIGN CO.**, Muncie, Ind.

Subscribe for Motor Age  
Two Dollars a Year



## THE HAM GOLD BLAST AUTO LAMPS

"THE LAMPS THAT LIGHT THE ROAD"

#### MR. MANUFACTURER:

Don't close your lamp contract for 1906 until you look over our line. We have no competition in light giving and burning qualities, and our lamps will surely interest you.

#### MR. DEALER:

Isn't it worth something to sell your customers lamps that will not only satisfy them, but will bring them back to tell you what a fine light they give, how steadily they burn in the strongest winds and over the roughest roads, and what a good fellow you are for selling them good lamps. They'll tell their friends about it, too.

#### MR. AUTOMOBILIST:

Are you discouraged with the oil lamp proposition? If you are, we know you haven't tried the

## HAM COLD BLAST AUTO LAMPS

because they are a delight to the most critical. They are strongly built, handsome in appearance, give a powerful light, and are always reliable, as they are wind proof and will not jar out. Never smoke, consequently the interior is always bright and clear, and there is no odor.

WRITE FOR BOOKLET

**C. T. HAM MFG. CO.**  
ROCHESTER, N. Y.



## See Its Graceful Lines

Our General Service Wrench is just the wrench you want for your 1906 kit. Light, long, strong and handy. It is drop forged from the best bar steel, and case-hardened. Five sizes. Have you asked for for 40-page machine wrench booklet?

**THE BILLINGS & SPENCER CO.**  
HARTFORD, CONN.

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Transmissions, Clutches, Carburetors, and Accessories are manufactured and sold only by

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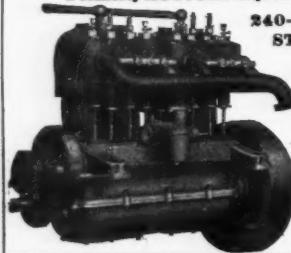
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Also Marine Reverse Gears and Propellers. Send for Catalog.

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Direct Factory Representatives.



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Used by the largest American manufacturers. Get our estimates on all kinds of automobile work.

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Advertisements under this head 3 cents per word first insertion; 2 cents per word for each insertion thereafter. Ads set in any style other than regular setting, 24 cents a line first insertion, 16 cents a line for each insertion thereafter.

Special rates for continuous advertising in these columns upon application.

**1904 WINTON**—First check of \$1,200 takes this car; fine condition; revarnished this spring; upholstering good; two gas and three oil lamps; with canopy top, glass front and curtains. All tires new this spring, with two extra casings and four inner tubes. Owner has just put in new crank shaft, fly wheel, main bearings, high speed gear, reverse gear, sprocket, chain, rear axle and bearings, rear axle frame, cones and bearings in front, carburetors, batteries and sight feed oiler on dash. Has extra chain and sprocket, side baskets and complete tool outfit. Best reason for selling. Practical demonstration at any time. Address C. R. Bowersox, Bryan, O.

**FOR SALE**—Olds \$650 runabout. Has not been run over 50 miles; in fact, is a new machine, latest model, for which I have no use. Machine is all right, but was taken in trade. Price \$500. Guaranteed as represented. Guarantee, care MOTOR AGE.

**FOR SALE**—Two 1905 Ramblers, Type 1. Have been handled with care and are in A1 condition. Owners have purchased 4-cylinder cars of same make. \$900 each. T. G. Owen, Newport, R. I.

**FOR SALE**—Buffalo Electric in first class order. Does not need refinishing. Tires show little wear. Battery in good condition. Will be sold at one-third cost. Write for price. C. J. Bousfield, Bay City, Mich.

**1905** White Steamer, equipped with canopy top, glass front, Gray & Davis mirror lens headlights and generator; baskets, autometer, electric light for gauges. Address Box 267, Portland, Me.

**FOR SALE**—8 H. P. Olds engine in runabout car. 2 new Morgan & Wright tires. \$250. Box 143, Cayuga, Ind.

**BARGAINS** while they last. New 2 H. P. marine engine, \$60; new 6 H. P. 2-cylinder marine engine, \$165; new 4-cylinder marine engine, only \$300; fully guaranteed. Witte Gas & Gasoline Engine Co., 47-49 S. Canal St., Chicago, Ill.

## You will find

lots of advertisements of coils, plugs, circuit-breakers, switches, etc. in the papers, you will recognize them by their lack of arguments. Their products have no special merit, the makers got to dig up the most trivial points, which every article of this kind should possess.

We will send you a book of arguments free: Our new catalog.

### WHAT WE HAVE:

The HERZ TIMER—16 models, to fit any make of motor. Remember: It's TOOLSTEEL vs. TOOLSTEEL. Bougie Mercedes—double stone. Herz-Distributor—1 coil for all cylinders. Guenet Coils. Carpenter-Interrupter. New prices—Single, \$16; double, \$29; triple, \$38; quad, \$59.

A line of switches of original design; contacts dust-proof covered. Detachable terminals.

Wire terminals with groove. Special ignition cables and wires. Everything for the ignition.

One grade: The Best.

**HERZ & CO.** Civil Engineers

187 Elm Street, New York

Write for free Vademecum of Ignition.

**FOR SALE**—Seven horsepower runabout, in perfect order; cheap. T. E. Lutz, Galion, O.

**FOR SALE**—Cadillac, 1904 Model "A" tonneau; newly painted; guarantee good condition. Capen Motor Car Co., St. Louis, Mo.

**WE HAVE** a brand new Baker Imperial and a Baker Stanhope, slightly used for demonstrating. We are not going to handle electric cars the coming season and will sell these at less than cost. Pardee-Ullmann Company, 1218 Michigan Ave., Chicago.

**FOR SALE OR TRADE**—One Cadillac tonneau car, specially built; Rushmore searchlight; extra inner tube; run very little; will demonstrate. Reason for selling, have two cars. Will trade for buckboard. Address Box 297, Portland, N. D.

**PACKARD** Model N, 1905, top, glass front, headlights. As good as new in every respect. \$3,000. Pardee-Ullmann Company, 1218 Michigan Ave., Chicago.

**FOR SALE**—35-40 H. P. Haynes-Apperson 4-cylinder touring car, 1905 Model. Delivered in July and used very little. In perfect condition. Fitted with extension top and plate glass front. Cost, complete with Prestolite tank, lamps, etc., \$3,200. Will sell for \$2,000. B. W. Kirshbaum, 207 West Washington St., Indianapolis, Ind.

**WANTED**—To purchase 1905 White Steamer. Must be in good condition. State lowest price. T. G. Gordon, 1240 Louisiana Ave., New Orleans, La.

**RAMBLER**—Model H, purchased in March; car is in good running order; has had good care; tires new or retreaded except one; three extra inner tubes; 7-inch Solar searchlight and generator; set Weed's tire chains; Gilbert cover for two persons; two oil sidelights and tall light; pump, jack and tools; have hauled four people 150 miles per day in this car; reason for selling, want surrey Type 1, same make. Price for immediate sale, \$550; will demonstrate at any time. E. B. Tucker, Mattoon, Ill.

**FOR SALE**—Complete sets of castings of automobile and marine engines with blue prints, single cylinder, 4 H. P., castings, \$25; double cylinder 8 H. P. castings, \$40; four cylinder 16 H. P. castings, \$95. Witte Gas & Gasoline Engine Co., 47-49 S. Canal St., Chicago.

**FOR SALE**—1904 Winton; canopy top; new sprocket; new chain; extra tire; oilers on dash; good tires. In good condition. Price \$1,000. Ralph E. Clarke, Coldwater, Mich.

**LIGHT RUNABOUT**—A special built Rambler, new last spring, just entirely overhauled and repainted, body dark red, yellow running gear. Snap for quick cash. Owner has bought larger Rambler. "Runabout," 815 Main St., Keokuk, Iowa.

**ONE MOTOR CYCLE FRAME**, complete with tandem attachment, \$18. Herman Kaskel, Spencerville, O.

**FOR SALE**—Orient buckboard, fine shape, tires hardly scratched, for \$150. A bargain. Asheville Auto Co., Asheville, N. C.

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are connected by a railroad route having finely appointed trains, day and night—Sleepers and Parlors.

### MONON--C. H. & D.

Ride this way once and you'll ride again—we think.

Chas. H. Rockwell,  
Traffic Manager

Frank J. Reed,  
Gen'l Pass. Agt.

CHICAGO

**MOTOR AGE**  
GETS THE NEWS  
309 Michigan Ave., Chicago

# WANTED!

Bids on fifty motors, fifty transmissions, (sliding gear) and fifty rear axle equipments, completed and assembled to our specifications and patterns. Will contract in part or whole. Blue prints submitted on request. Mention facilities for prompt performance of contract. Box 40, care Motor Age.

WHITE 1905 Model, slightly used for demonstrating, in first class condition, \$1,500. Pardue-Ullmann Company, 1218 Michigan Ave., Chicago.

FOR SALE—Model A Winton; run 500 miles; fully equipped; bargain for quick sale. C. E. Wilkins, Omaha, Neb.

1905 Model 6 C curve dash Olds; new paint and tires; just as good as new and looks it; top with it. K., care MOTOR AGE.

PACKARD, 15 H. P., automobile, \$200; complete with all accessories, lamps, horn, extra tires; in first class running condition. A. J. Houle, South East St., Holyoke, Mass.

FOR SALE—One 40 H. P., 1905, up to date Thomas Flyer. Has had the best of care and is as good as new. Extension top, glass front, 6 fine lamps, including 3 in swivel searchlight. Prestolite tank and Jones speedometer. Speak quick. Barclay Auto Co., 248-50 Third Ave. S., Minneapolis, Minn.

1903 Winton; completely overhauled; worn parts replaced; new paint; new 4½-inch rear tires; side baskets, etc.; \$650. L., care MOTOR AGE.

FOR SALE—Olds runabout in good condition; consider no trade; a bargain at \$275. R. M. Walker, Monroe City, Mo.

SOME SHAKE-UPS in auto lamps, searchlights and generators; a few salesmen's samples at half cost to make. Miller Mfg. Co., Peekskill, N. Y.

FOR SALE—Packard model L, in A1 condition, fully equipped with lamps; price \$2,000. Also one Packard model N, as good as new, fully equipped with head lamps and new Bailey tread tires; price \$2,600. One 1904 Franklin touring car, with full set of lamps, detachable tonneau and Goodyear detachable tires, almost new; can be bought for \$1,000 if taken at once. Bates-Odenbrett Auto Co., Milwaukee, Wis.

FOR SALE—Single cylinder, 8 H. P. gasoline touring car; excellent condition, speedy and good hill climber; \$300 cash or will trade for real estate. F. G. Hodell, 24 Cooper St., Cleveland, O.

WILL TRADE quarter section smooth land in western Kansas wheat belt for automobile. F. L. Martin, Hutchinson, Kan.

FOR SALE—Garage established with Winton and Cadillac agencies for 1906 at Spokane, Wash. Fine location and a good storage business. Will sell at invoice or will consider partnership. Address G. W. Miller, Broadway and Madison Sts., Seattle, Wash.

A Two-Cylinder  
Opposed  
Air Cooled  
Success

# Logan



Sliding Gear  
Transmission  
Chain Drive

## That Car of Quality

THIS light delivery car is ready. By ready we mean an honestly tested and perfect machine. It is built from the ground up for delivery purposes and is exactly what all merchants and manufacturers need, namely a light, quick and reliable delivery car that will carry 1500 lbs.

Write for catalogue A 11-4 and detailed information.

**Logan Construction Co., Chillicothe, Ohio**

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We have a live proposition to offer dealers and agents in every town and city to handle our ready to deliver cape cart tops. Auto Top & Equipment Co., 1604 Broadway, New York City.

FOR SALE—Detachable motor bicycle outfits at fall prices. Send for literature. Shaw Mfg. Co., Galesburg, Kan.

### AUTOMOBILE BARGAINS

Through a business deal we obtained a few standard \$1,400 side entrance touring cars, 20 H. P. double opposed engine, and \$750 runabouts, made by one of the oldest automobile makers in the country. ALL NEW GOODS. Shipments made direct from factory. Full description on application. The opportunity of a lifetime. Write today, making best cash offer. Having already made our profit on these cars, we can afford to let them go at a sacrifice. Best cash offer takes first machine, next best second, etc., until closed out regardless of cost. No trades. Skinner & Skinner, 4134 Indiana Ave., Chicago.

1906 Olds, Model B; curve dash; blue and yellow; used but little. M., care MOTOR AGE.

FOR SALE—8-10 passenger wagonette; sample car 1905-6 Model; steam; price and description on application. Thompson Auto Co., Olneyville Sq., Providence, R. I.

FOR SALE—1905, 30-35 H. P. Locomobile; perfect condition; satisfactory demonstration; owner had also 1904 Locomobile; has ordered 1906 car; write us. Capen Motor Car Co., St. Louis, Mo.

FOR SALE OR TRADE—2 sections, 1,280 acres of good ranch land in Presidio county, Texas; will trade for automobiles. Alliance Motor Car Co., Alliance, Ohio.

FOR SALE—6 H. P. air cooled motor, \$75; 10 H. P. water cooled motor, \$85, new; 15 tube radiator, \$10; hood, \$12; McCanna 4 feed lubricator, new, \$15; No. 10 Rose headlight, \$12. Any of these parts sold separately. A. M. Symonds, 901 N. Fairfield Ave., Chicago, Ill.

1905 Model B Pope-Hartford; new; never used; \$500. N., care MOTOR AGE.

AUTOCAR, seats 4 people, in best of condition, for sale or exchange; merchandise preferred. G. Knabe, Apollo, Pa.

FOR SALE—1904 Winton with canopy top, plate glass front, 4 lamps and tools complete; guarantee perfect order; sell for \$1,000. Wm. T. Sigler, Piedmont, W. Va.

AGENTS WANTED—For our automobile and marine engines. Spark plugs, 50c and \$1, direct to consumer. Coils, carburetors and all supplies at corresponding prices. Columbus Screw & Machine Co., Columbus, O.

1905 Model B Pope-Hartford, used but little; in A1 condition; \$450. J., care MOTOR AGE.

FOR SALE—Late 1905 standard Oldsmobile runabout, with rear seat, traveling box, boot, storm apron and horn. Cost, with extras, \$700. In prime condition. First \$550 takes it. Hamlin Barnes, Wellsville, O.

WANTED—Two first class automobile repairmen. Steady position to right parties. Address H. E. Fredrickson, 1502 Capitol Ave., Omaha, Neb.

FOR SALE—Autocar runabout, excellent condition, \$350; can be seen in Chicago any time. Address Box 15, MOTOR AGE.

### When Your Motor No Longer

Handles the load, don't buy a new machine, send motor to us. We know how to fit pistons and thoroughly overhaul motors. McCadden Machine Works, St. Cloud, Minn.

FOR SALE—Thomas tonneau model 18 touring car, with canopy top, extra tire, etc., in fine condition; \$425. C. W. Travis, Evansville, Ind.

FOR SALE—10 H. P. transmission, \$30. A. M. Symonds, 901 N. Fairfield Ave., Chicago, Ill.

FOR SALE—Toledo steam automobile; two 16" fire tube boilers. Wanted, one White flash boiler and a four-cylinder marine engine. Spencer Bros., Charleroi, Pa.

## KINGSTON CARBURETORS

1905 model, 1 inch inlet, absolutely new; \$4.75 each. Cash with order.

**HOLLEY BROS. CO.**  
661-673 Beaubien St. DETROIT, MICH.

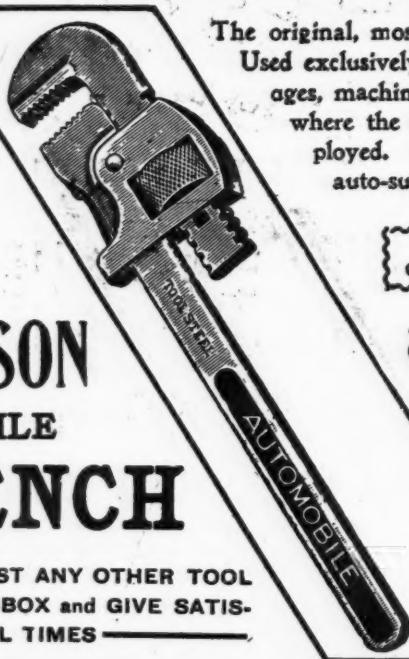
**Wanted** Names of Automobile Owners that would rather see their tires being pumped up than do the pumping. Our Tom Tire Pump fits on any Standard Machine and is worked by the motor, easily attached, well tested out, all enclosed and very satisfactory. Get acquainted with it. It is something that you will like. Agents wanted.

**NYBERG AUTOMOBILE WORKS. CHICAGO, ILL.**  
Fully described in Horseless Age, Feb. 1; Automobile Review, Feb. 4.

When  
your  
Auto  
isn't  
just  
right,  
use  
the

# STILLSON AUTOMOBILE WRENCH

IT WILL OUTLAST ANY OTHER TOOL  
IN YOUR TOOL-BOX and GIVE SATIS-  
FACTION AT ALL TIMES



The original, most efficient and durable. Used exclusively in all up-to-date garages, machine shops and all places where the best mechanics are employed. Sold by all leading auto-supply jobbers and dealers.

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CIRCULAR AND PRICES

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**Mfg. Co.**

Boston  
Mass.  
U. S. A.

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of Auto Owners, Dealers, Garages and Manufacturers

We are the only concern that can furnish complete lists of the above to date. New names daily, weekly and monthly. Postage guaranteed. References furnished. If you are dealing with others we will tell you what you should get on your contract.

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Our chains outwear all others. Replace your worn-out chain with a "Diamond," which fits any standard sprocket.

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This is NOT  
**A FAIRY TALE**  
We guarantee to increase the spark in your cylinders by  
**ONE HUNDRED PER CENT**  
Through our PATENTED

## Steel Armored Ignition Cable

Adopted by the Leading European Firms

It is sold cut to the required lengths complete with all terminals. Send us your requirements. Do it now!

**HERZ & CO.,** 187 Elm St., New York  
The largest manufacturers of Ignition Material in America.

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TURN FRICTION INTO ENERGY  
**HYATT ROLLER BEARING CO.**  
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ARE YOU FROM MISSOURI?

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Inflates evenly. Tires last longer. "Lea" takes the work out of pumping, too.

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Philadelphia

Sole Selling Agent for MOTOR CAR SPECIALTY CO., Trenton, N. J.

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